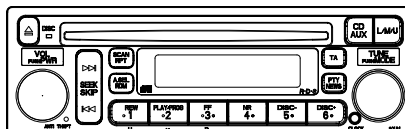


Service Manual

HONDA



ORDER NO.
CRT2753

MULTI-CD CONTROL CD PLAYER WITH RDS TUNER

DEH-M7317ZH EW

COMPACT
disc
DIGITAL AUDIO

VEHICLE	DESTINATION	PRODUCED AFTER	HONDA PART No.	ID No.	PIONEER MODEL No.
S2000	EUROPE	August 2001	39101-S2A-G210-M1	3YA1	DEH-M7317ZH/EW

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-958	CRT2423	S8.1	CD Mech. Module:Circuit Description, Mech.Description, Disassembly

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PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER EUROPE NV Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

● CD Player Service Precautions

1. For pickup unit(CXX1285) handling, please refer to "Disassembly"(see page 41)
During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 37).

1. SAFETY INFORMATION

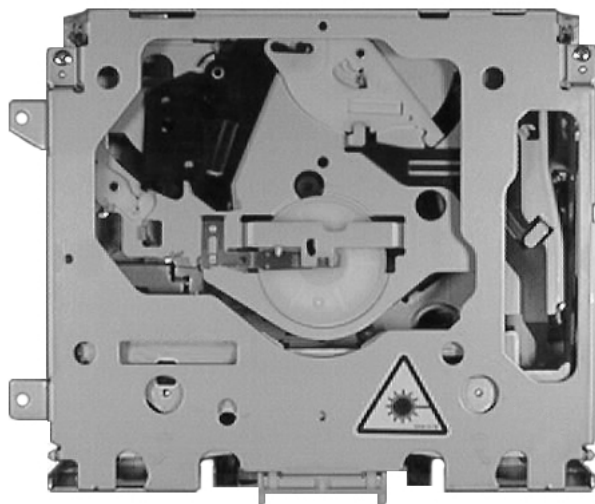
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

1. Safety Precautions for those who Service this Unit.

- When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
 2. During repair or tests, do not view laser beam for 10 seconds or longer.
2. A "CLASS 1 LASER PRODUCT" label is affixed to the top of the player.
 3. The triangular label is attached to the mechanism unit frame.



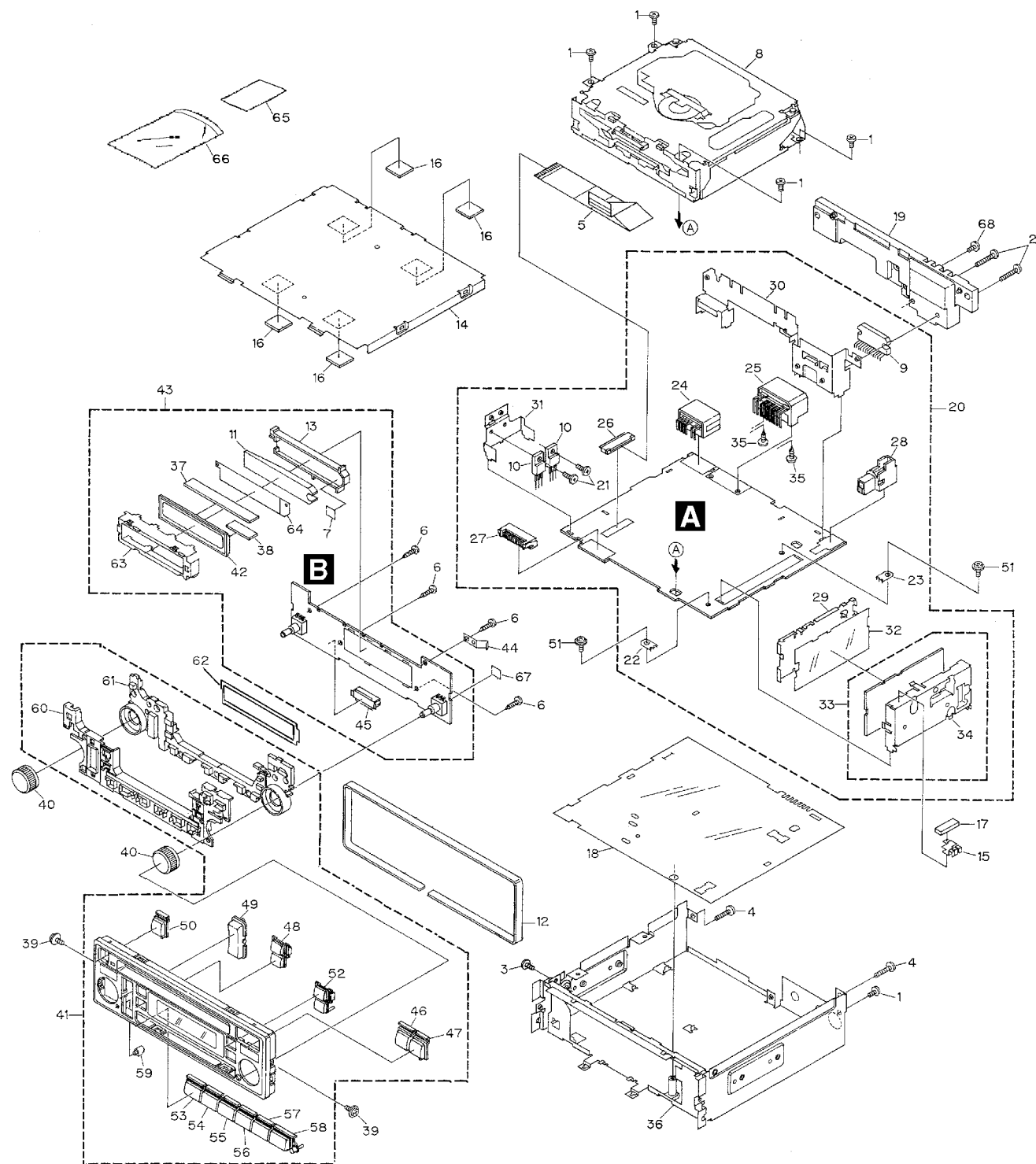
4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

Wavelength = 800 nanometers

2. EXPLODED VIEWS AND PARTS LIST

2.1 EXTERIOR



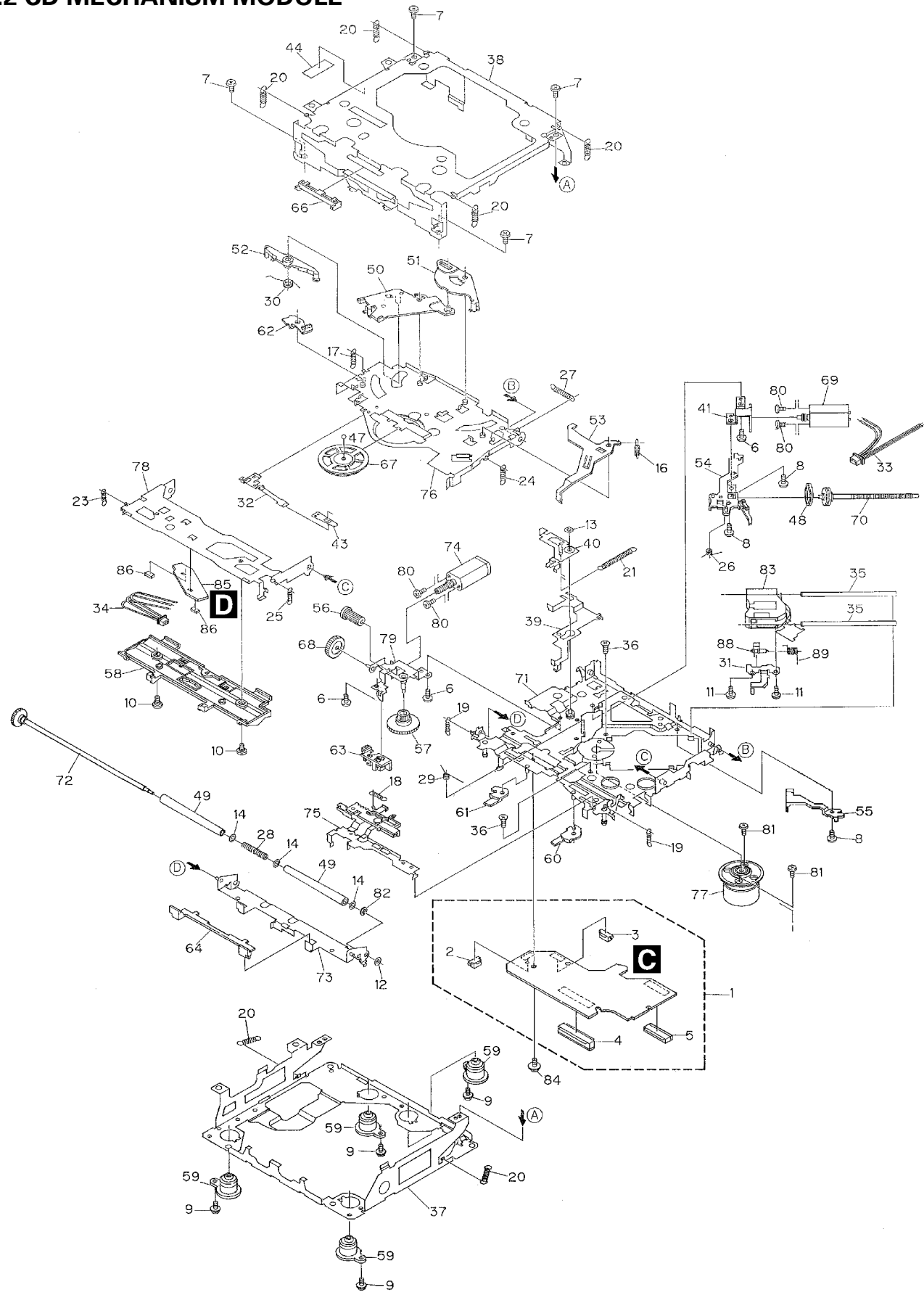
NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P060FMC	36	Chassis Unit	CXB6229
2	Screw	BMZ26P150FMC	37	Connector	CNV6163
3	Screw	BSZ30P060FMC	38	Connector	CNV6293
4	Screw	BSZ30P120FMC	39	Screw	ISS26P060FMC
5	Cable	CDE6645	40	Knob Assy	CXB8232
6	Screw	BPZ20P080FMC	41	Grille Assy	CXB8162
7	Spacer	CNM7313	42	LCD(LCD951)	CAW1708
8	CD Mechanism Module(S8.1H)	CXK5204	43	Keyboard Unit	CWM8000
9	IC(IC901)	TDA7384	44	Conductor	CNC9043
10	Transistor(Q801,805)	2SD2396	45	Socket(CN951)	CKS3551
11	Lighting Conductor	CNV6161	46	Button(CD,AUX)	CAC6827
12	Cushion	CNY-197	47	Button(L/M/U)	CAC6829
13	Holder	CNV6162	48	Button	CAC6830
14	Case	CNB2560	49	Button(SEEK,SKIP)	CAC6831
15	Holder	CNC5704	50	Button(EJECT)	CAC6838
16	Cushion	CNM7071	51	Screw	ISS26P055FUC
17	Cushion	CNM4870	52	Button(TA,PTY/NEWS)	CAC6888
18	Insulator	CNM6862	53	Button(REW)	CAC6916
19	Heat Sink	CNR1565	54	Button(PLAY/PROG)	CAC6917
20	Tuner Amp Unit	CWM7999	55	Button(FF)	CAC6918
21	Screw	BSZ26P060FMC	56	Button(NR)	CAC6919
22	Terminal(CN501)	CKF1059	57	Button(DISC-)	CAC6920
23	Terminal(CN502)	CKF1059	58	Button(DISC+)	CAC6921
24	Connector(CN901)	CKM1208	59	Lighting Conductor	CNV6299
25	Plug(CN902)	CKM1283	60	Holder	CNV6482
26	Connector(CN601)	CKS1962	61	Lighting Conductor	CNV6481
27	Plug(CN602)	CKS3538	62	Spacer	CNM7705
28	Antenna Jack(ANT501)	CKX1060	63	Holder	CNC9251
29	Holder	CNC7533	64	Plate	CNM6684
30	Holder	CNC9809	65	ID Card	CEE1018
31	Holder	CNC8747	66	Polyethylene Bag	CEG1229
32	Insulator	CNM5967	67	Spacer	CNM7454
33	FM/AM Tuner Unit	CWE1576	68	Screw	BMZ30P060FMC
34	Holder	CNC7532			
35	Screw	PRZ30P060FSN			

2.2 CD MECHANISM MODULE



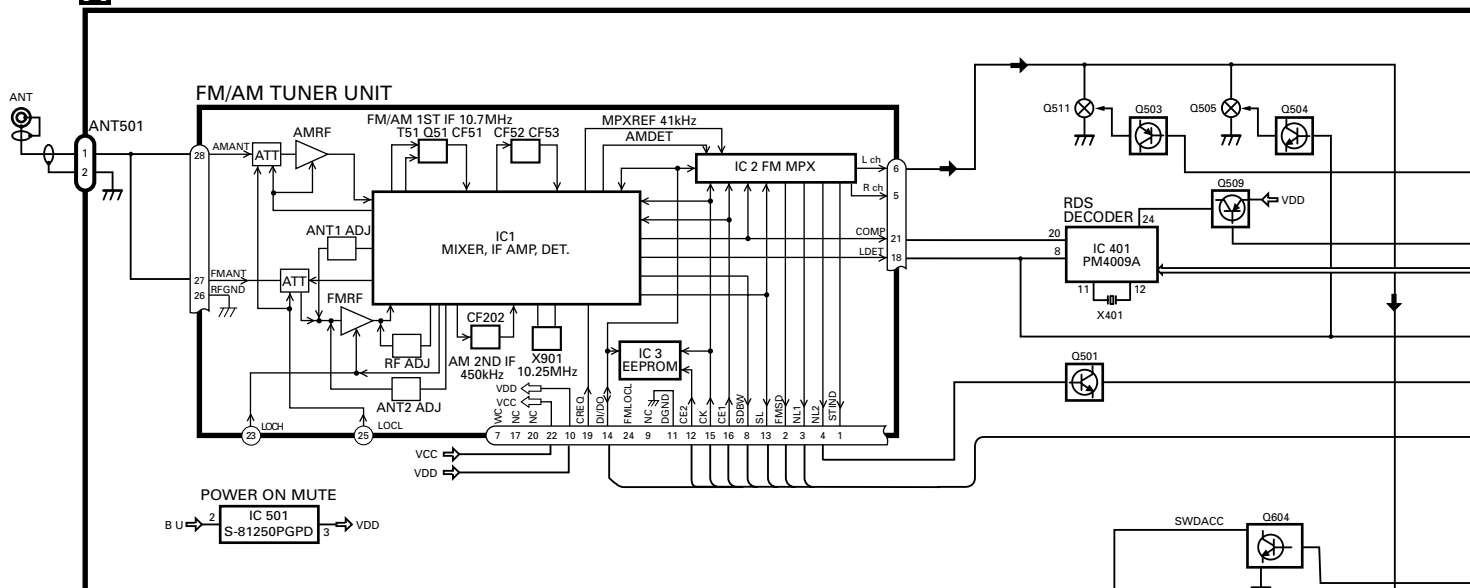
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Control Unit	CWX2411	46	.....
2	Connector(CN802)	CKS2192	47	Ball	CNR1189
3	Connector(CN801)	CKS2193	48	Belt	CNT1086
4	Connector(CN701)	CKS2773	49	Roller	CNV4509
5	Connector(CN101)	CKS3486	50	Arm	CNV6037
6	Screw	BMZ20P030FMC	51	Arm	CNV5247
7	Screw	BSZ20P040FMC	52	Arm	CNV5248
8	Screw(M2x3)	CBA1077	53	Arm	CNV5249
9	Screw(M2x5)	EBA1028	54	Guide	CNV5254
10	Screw	CBA1554	55	Guide	CNV5255
11	Screw(M2x4)	CBA1362	56	Gear	CNV5257
12	Washer	CBF1037	57	Gear	CNV5256
13	Washer	CBF1038	58	Guide	CNV6272
14	Washer	CBF1060	59	Damper	CNV5266
15	.....		60	Arm	CNV6096
16	Spring	CBH2079	61	Arm	CNV6031
17	Spring	CBH2117	62	Arm	CNV6853
18	Spring	CBH2314	63	Guide	CNV6012
19	Spring	CBH2110	64	Guide	CNV5510
20	Spring	CBH2282	65	.....
21	Spring	CBH2318	66	Guide	CNV5751
22	.....		67	Clamper	CNV6013
23	Spring	CBH2324	68	Gear	CNV5813
24	Spring	CBH2118	69	Motor Unit(M1)	CXB2190
25	Spring	CBH2161	70	Screw Unit	CXB5892
26	Spring	CBH2163	71	Chassis Unit	CXB5811
27	Spring	CBH2189	72	Gear Unit	CXB4728
28	Spring	CBH2377	73	Arm Unit	CXB5753
29	Spring	CBH2260	74	Motor Unit(M2)	CXB2195
30	Spring	CBH2262	75	Lever Unit	CXB4730
31	Bracket	CNC8568	76	Arm Unit	CXB7754
32	Spring	CBL1531	77	Motor Unit(M3)	CXB2562
33	Connector	CDE5531	78	Arm Unit	CXB4732
34	Connector	CDE5532	79	Bracket Unit	CXB4795
35	Shaft	CLA3894	80	Screw	JFZ20P025FMC
36	Screw(M2.6x6)	CBA1458	81	Screw	JGZ17P025FZK
37	Frame	CNC8565	82	Washer	YE20FUC
38	Frame	CNC8749	83	Pickup Unit(Service)(P8)	CXX1285
39	Lever	CNC8694	84	Screw	IMS26P030FMC
40	Arm	CNC8663	85	PCB	CNX2982
41	Bracket	CNC8567	86	Photo-transistor(Q1, 2)	CPT230SX-TU
42	.....		87	.....
43	Spacer	CNM3315	88	Rack	CNV6014
44	Sheet	CNM6659	89	Spring	CBH2315
45	.....			

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

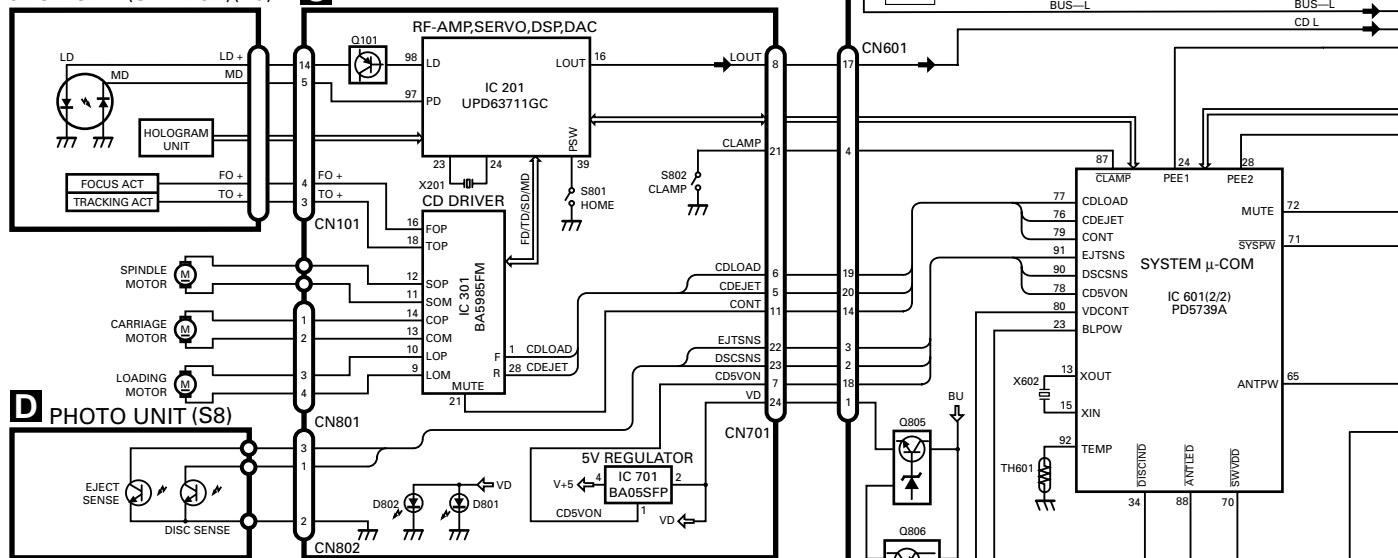
3.1 BLOCK DIAGRAM

A TUNER AMP UNIT

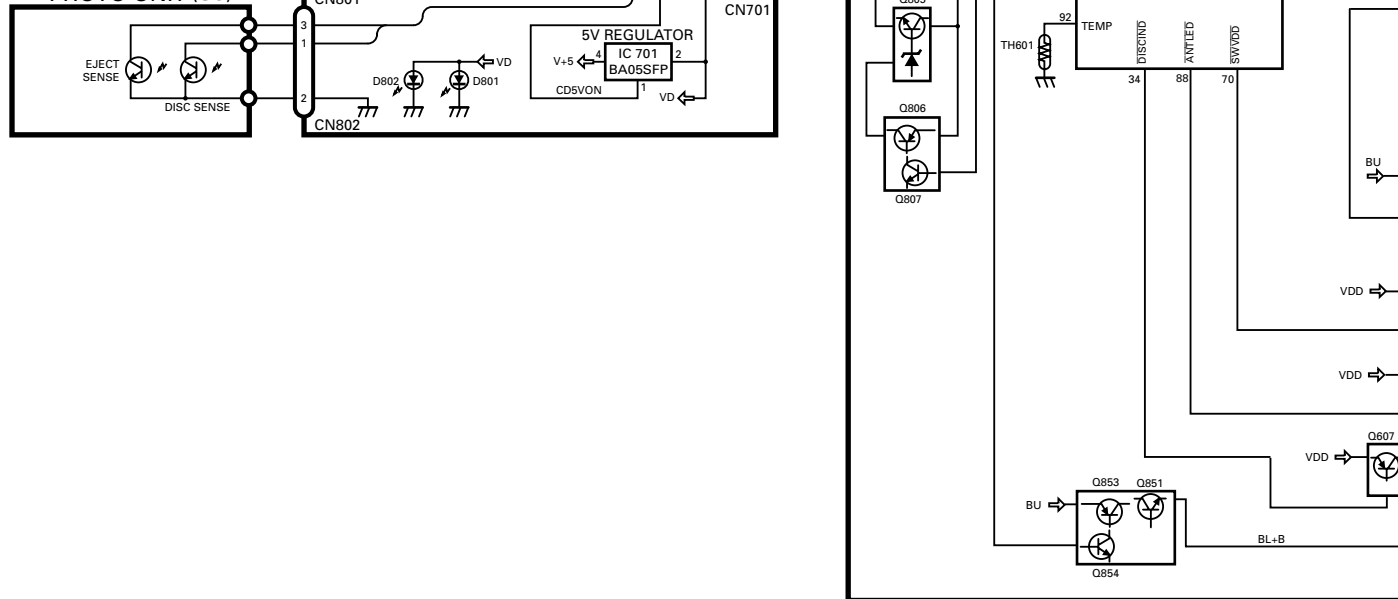


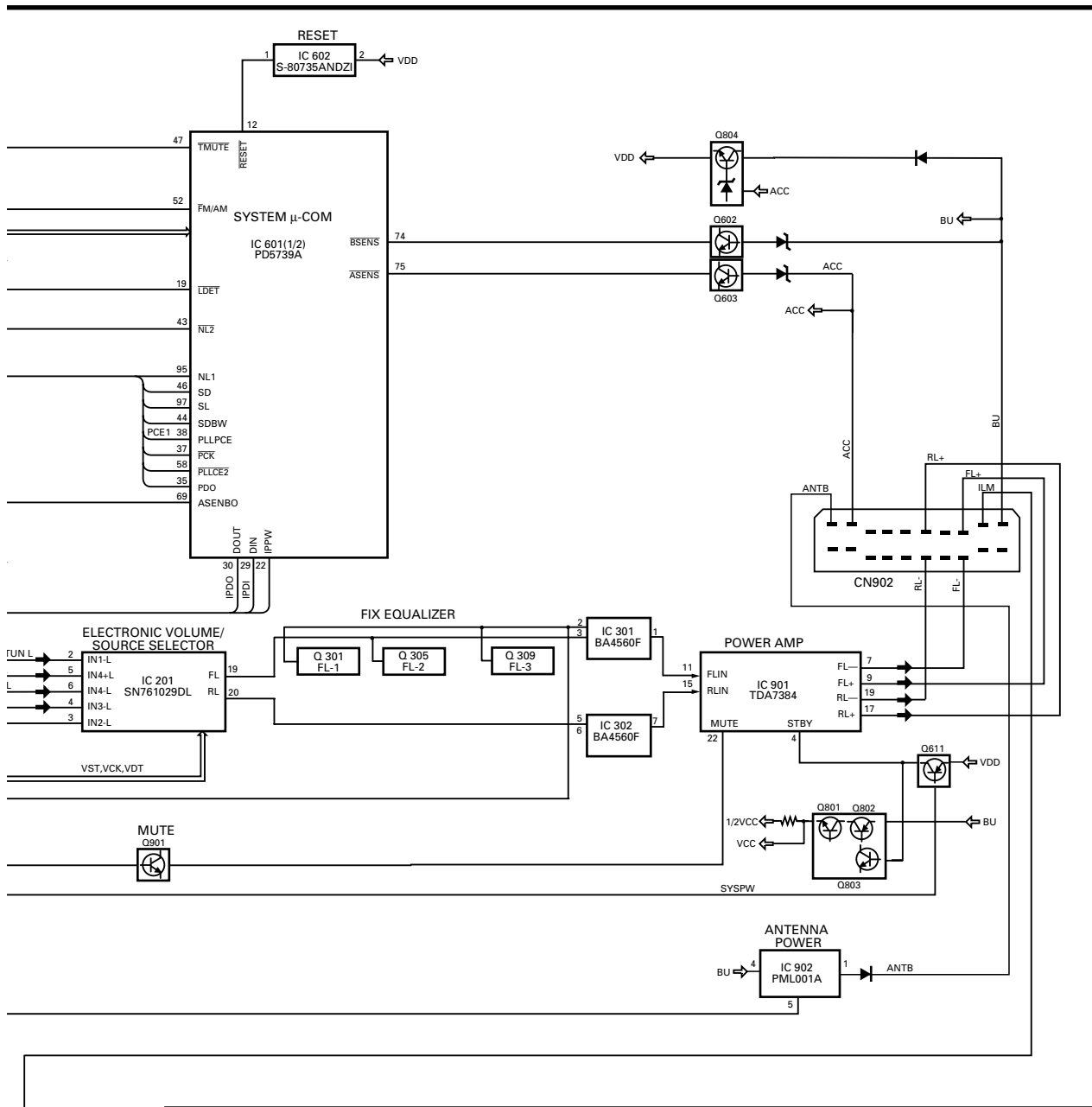
PICKUP UNIT(SERVICE)(P8)

C CONTROL UNIT

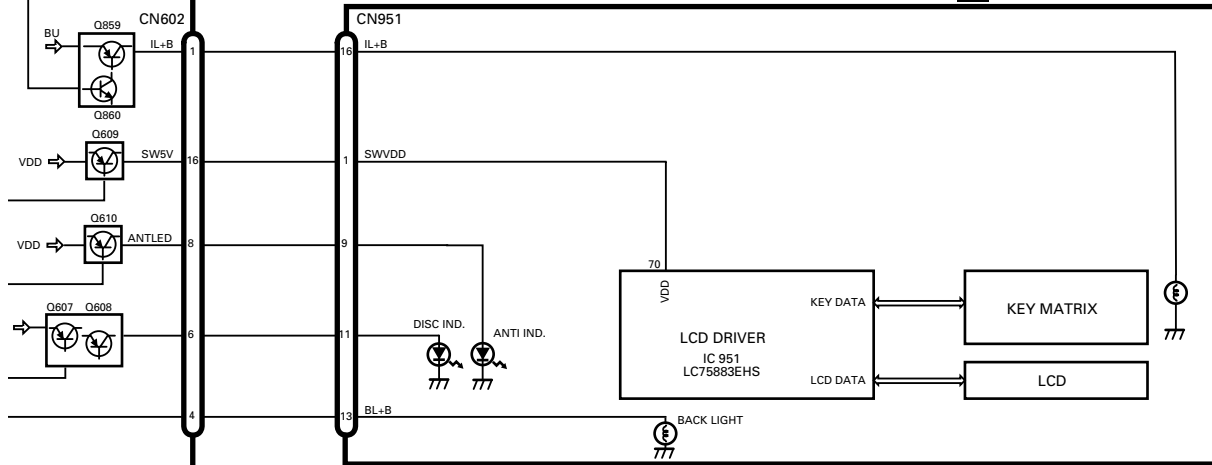


D PHOTO UNIT (S8)





B KEYBOARD UNIT



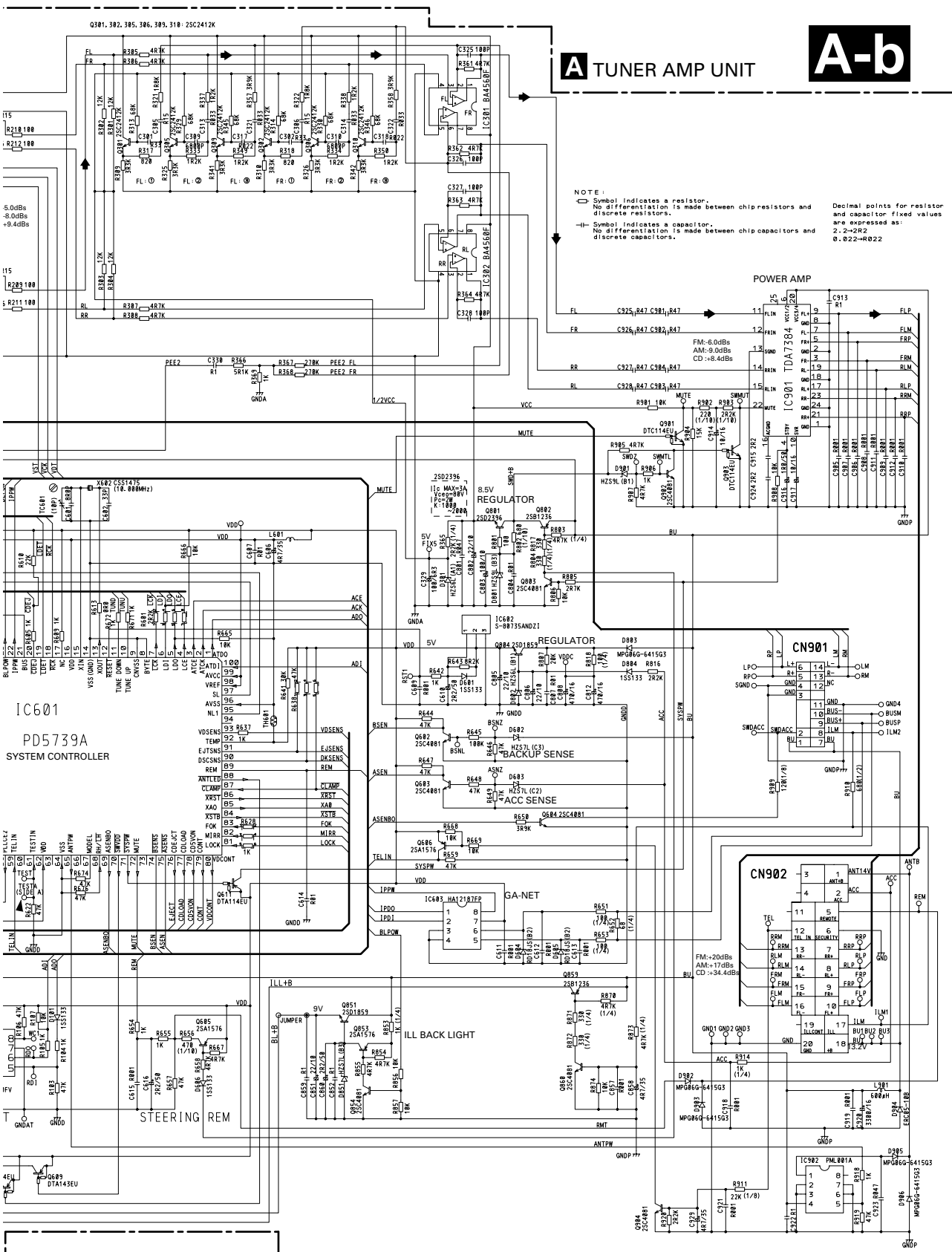
A TUNER AMP UNIT

A-b

NOTE:
 ○ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 —C— Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2-2R2
 0.022-0R22

POWER AMP



Resistor and Capacitor
 without specification is
 1/16W

A-a A-b

A

B

C

D

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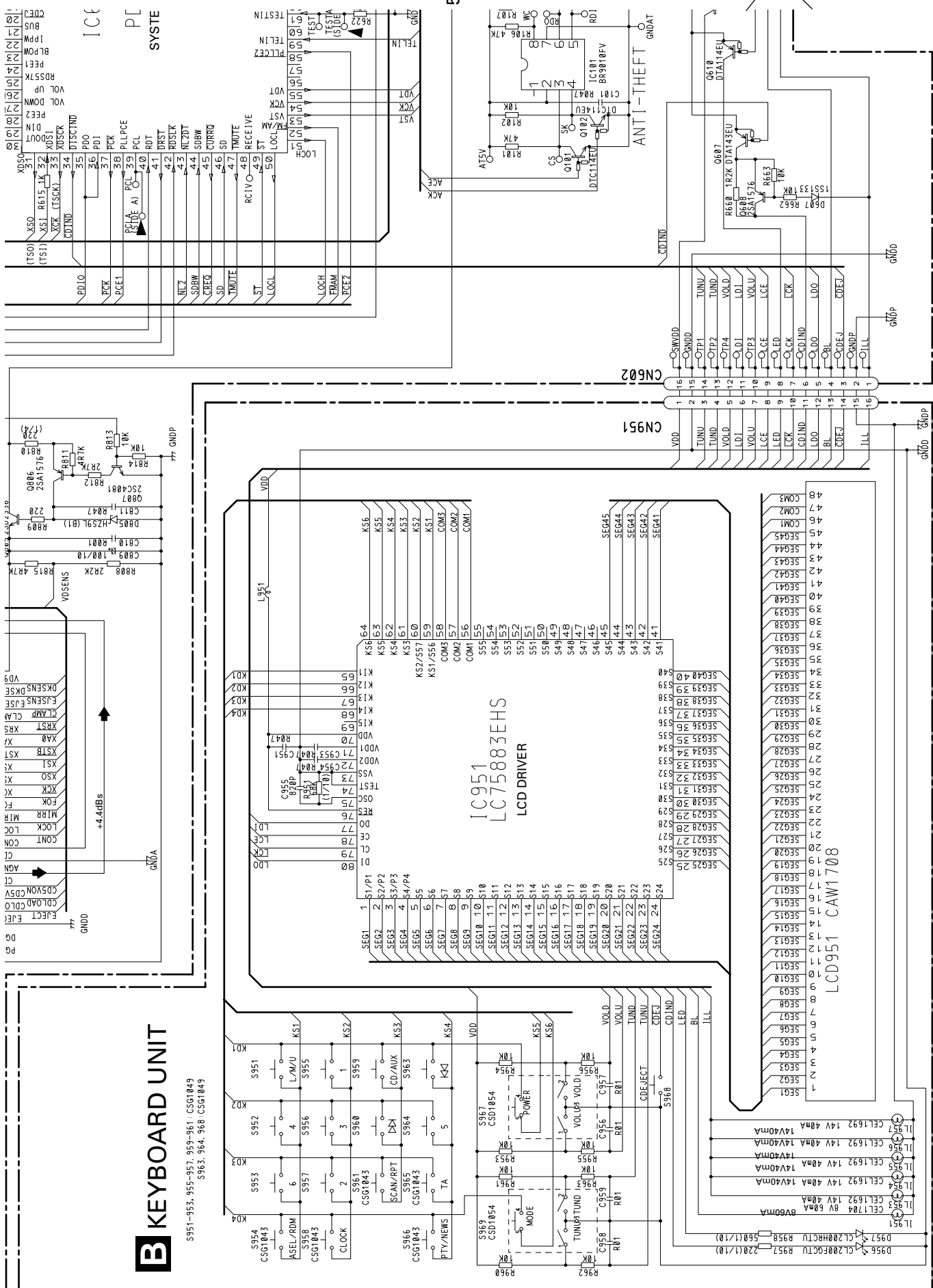
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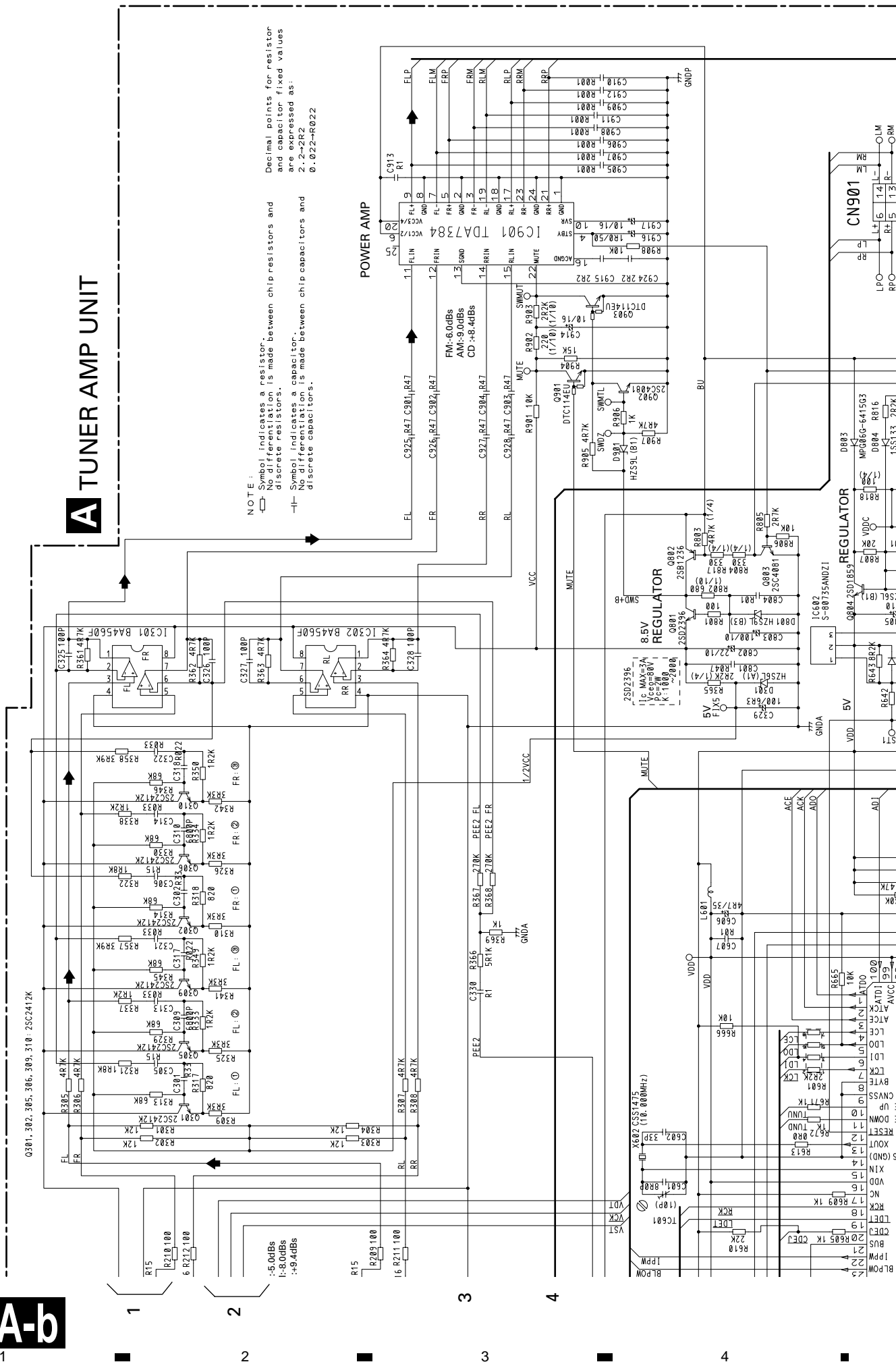
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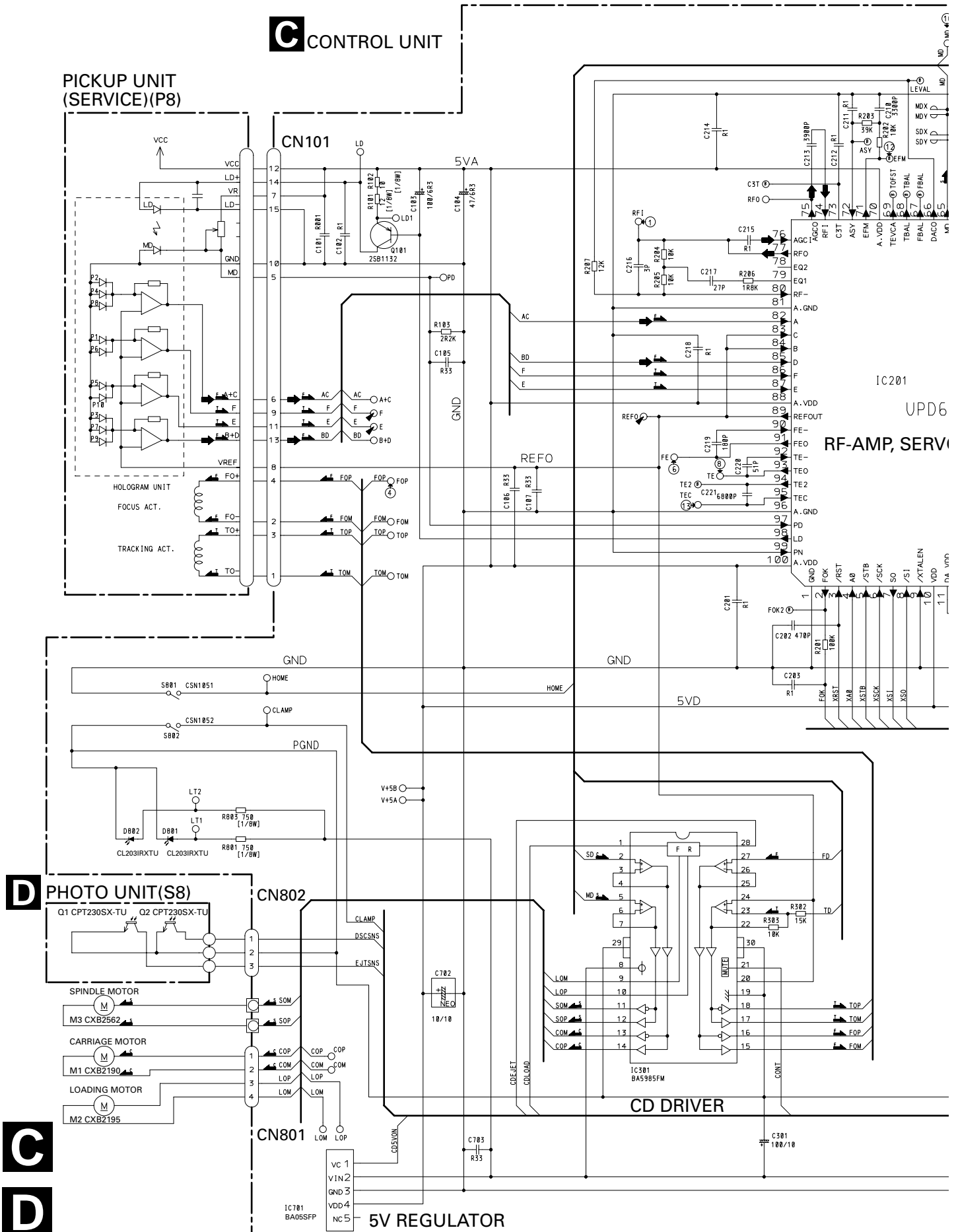


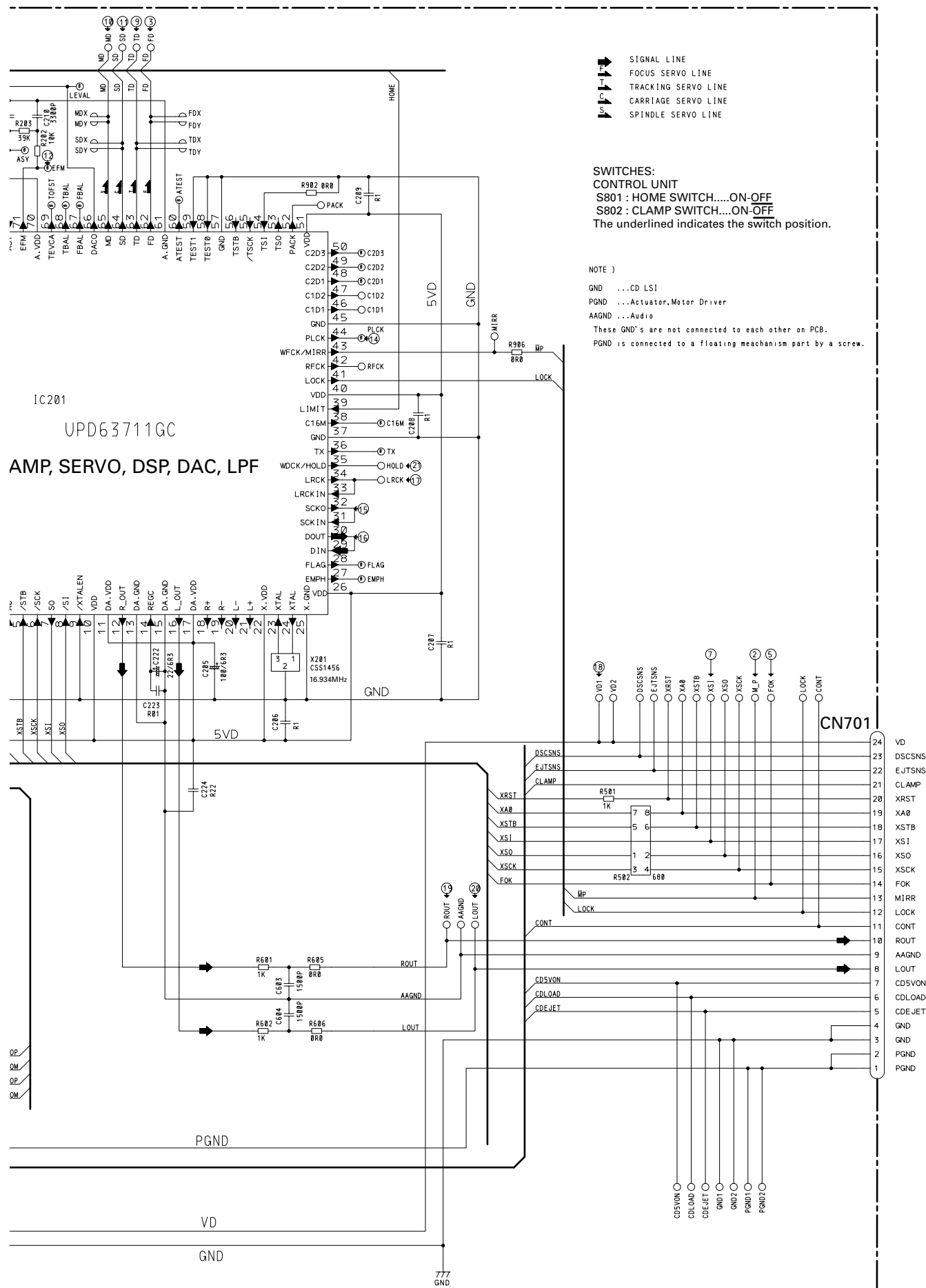
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3.3 CD MECHANISM MODULE





A CN601

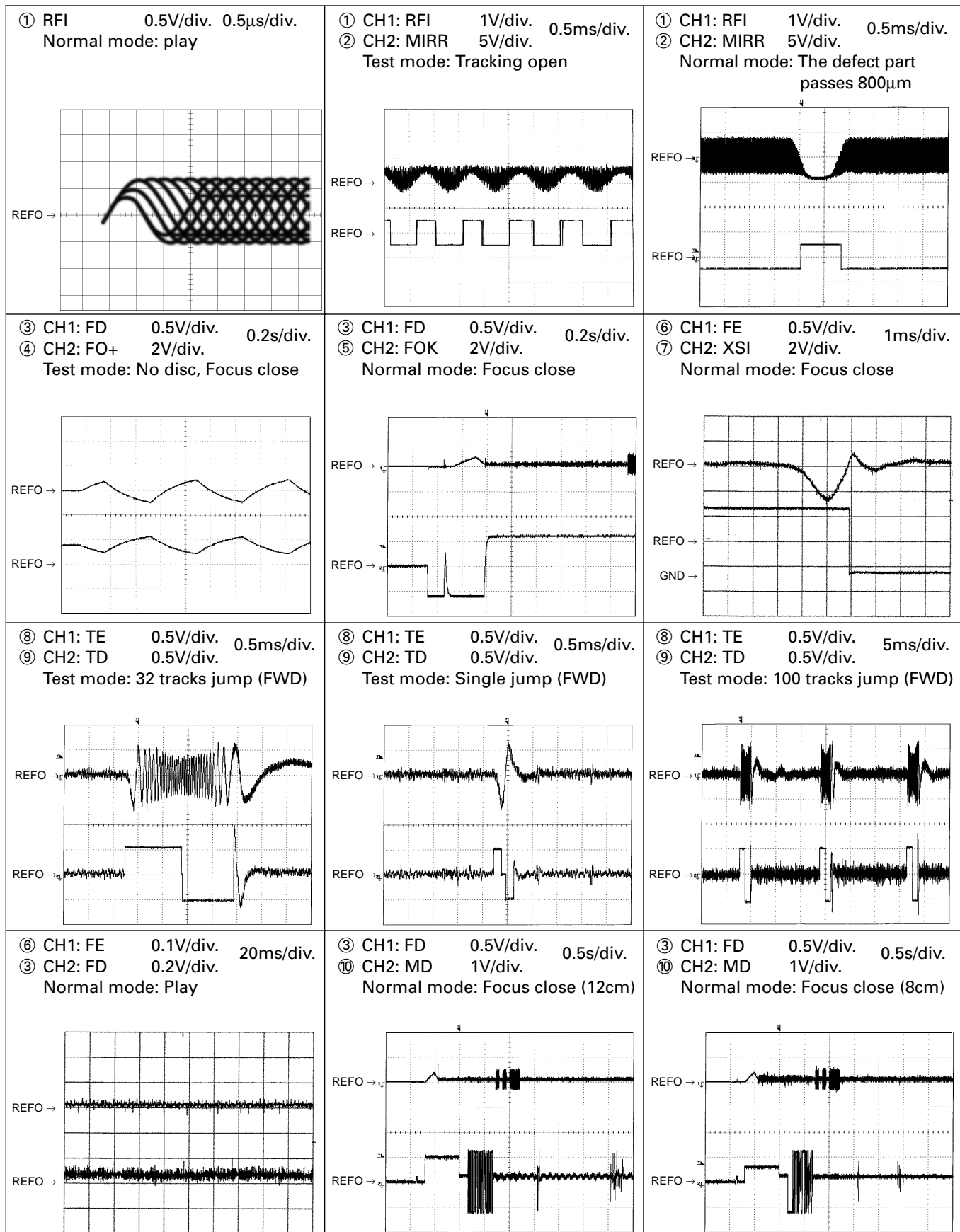
C

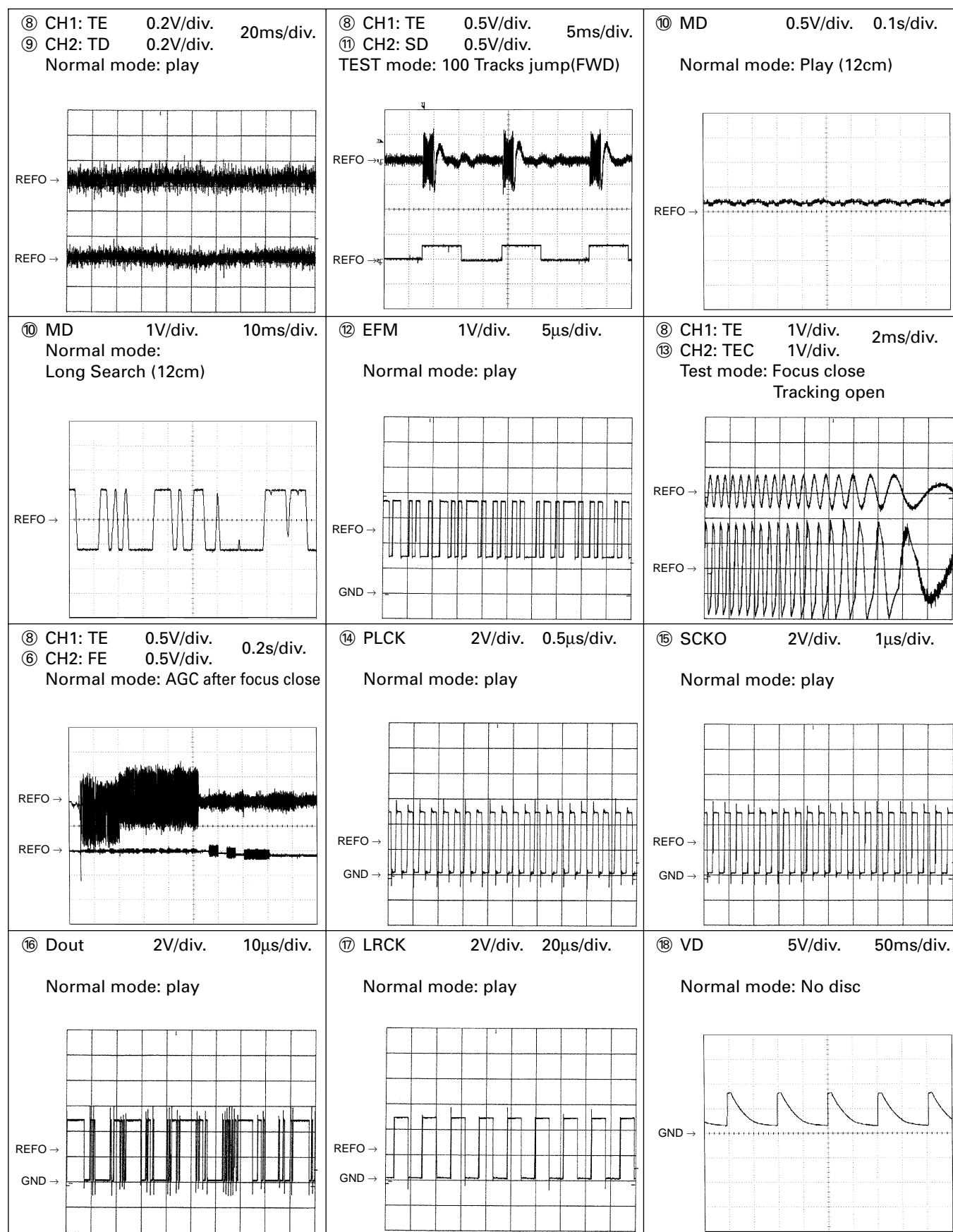
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.

2. Reference voltage

REFO:2.5V

● Waveforms





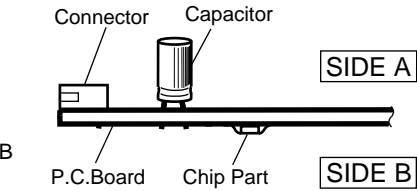
<div><div><div>⑰ CH1: R OUT 1V/div. 0.2ms/div.</div><div>⑳ CH2: L OUT 1V/div.</div><div>Normal mode: Play (1kHz 0dB)</div></div><div></div></div>	<div><div><div>⑥ CH1: FE 0.2V/div. 1ms/div.</div><div>③ CH2: FD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>	<div><div><div>⑧ CH1: TE 0.2V/div. 1ms/div.</div><div>⑨ CH2: TD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>
<div><div><div>① CH1: RFI 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>③ CH1: FD 0.5V/div. 0.5ms/div.</div><div>⑲ CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>⑨ CH1: TD 0.1V/div. 0.5ms/div.</div><div>⑲ CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>

4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

A NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

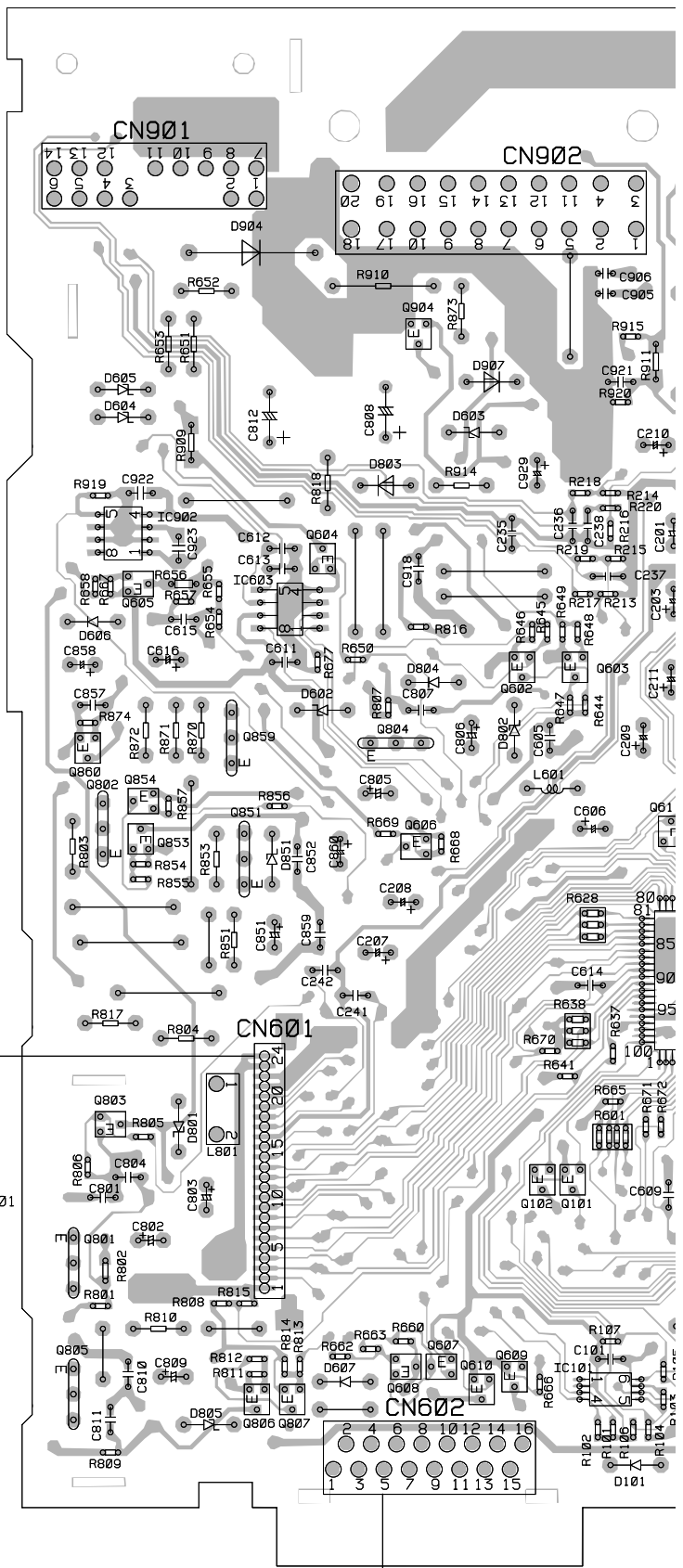


C

D

A TUNER AMP UNIT

IC, Q	
IC901	
Q902	
Q903	
Q904	
Q901	
Q307	Q303
Q311	IC302
IC902	
Q308	Q304
Q604	Q312
IC603	
IC201	Q508
	Q605
Q603	Q310
Q306	Q302
Q602	IC301
Q859	Q804
Q309	Q305
Q860	Q854
	Q802
Q851	Q611
Q853	Q606
IC602	
IC601	
Q504	
Q503	
Q511	Q505
CN701	Q803
	Q512
	Q506
Q101	Q501
	Q102
	Q801
Q509	Q507
Q805	Q607
Q610	Q609
	IC501
	IC401
	IC101
	Q608
Q806	Q807



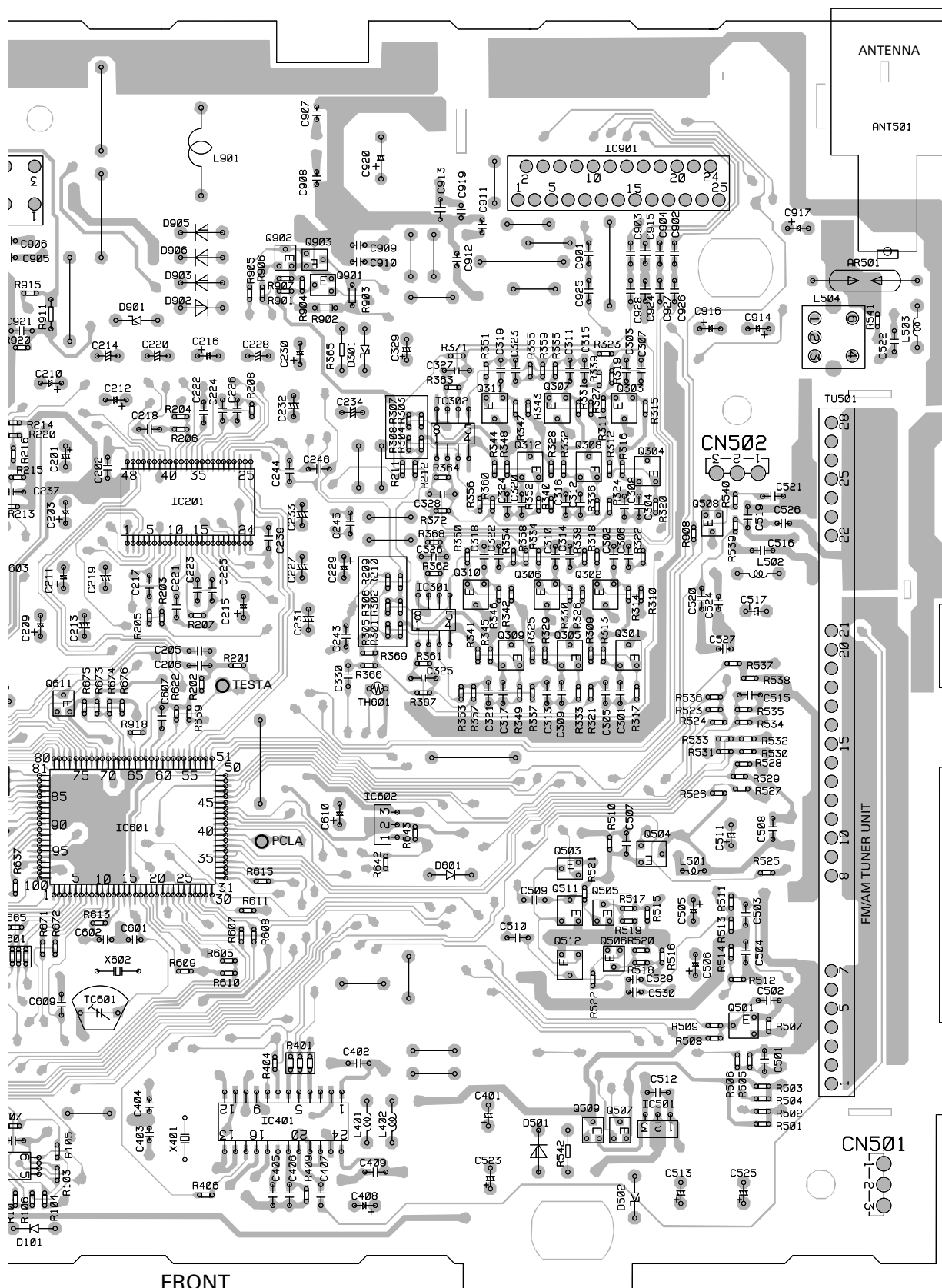
SIDE A

A

B

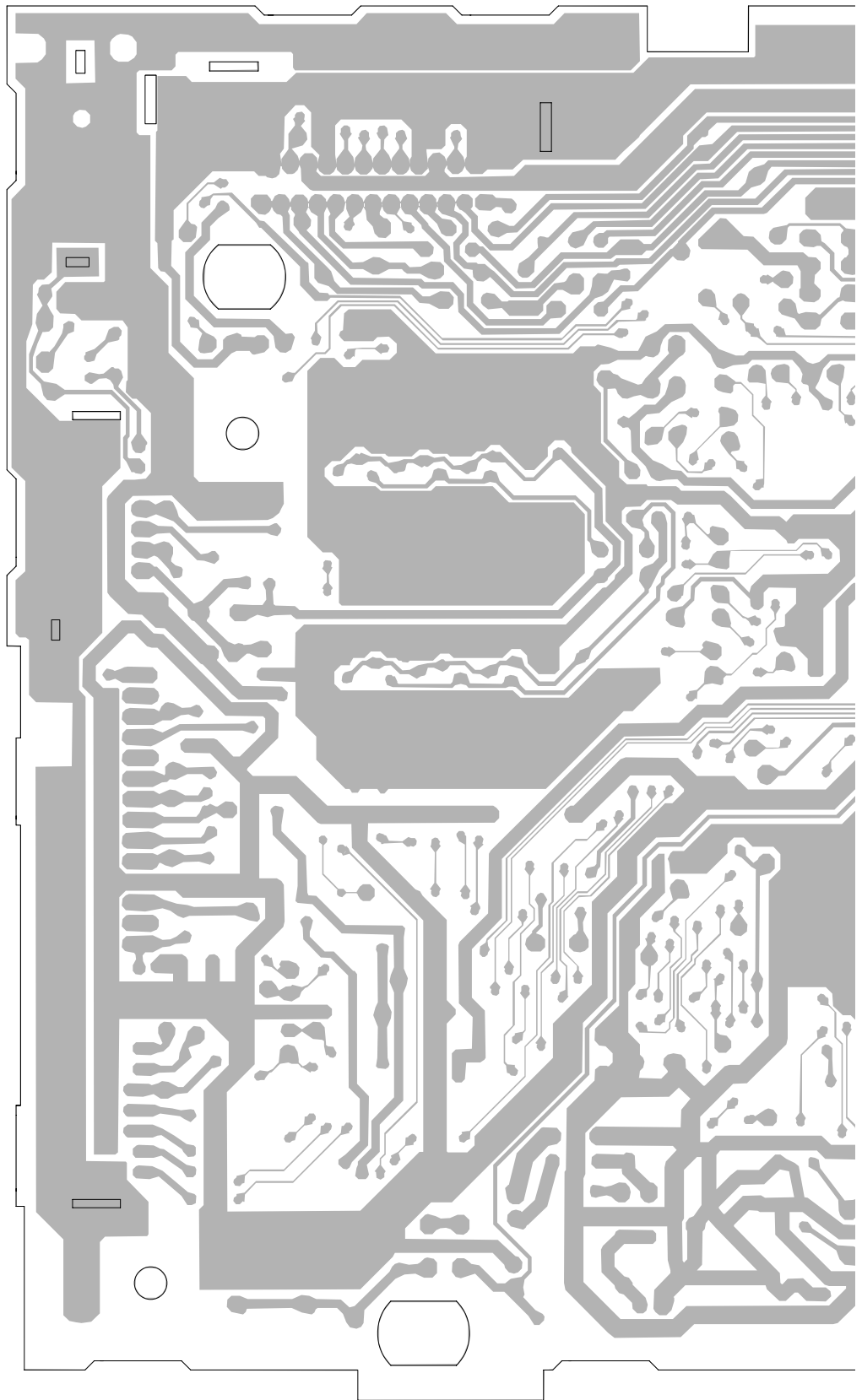
C

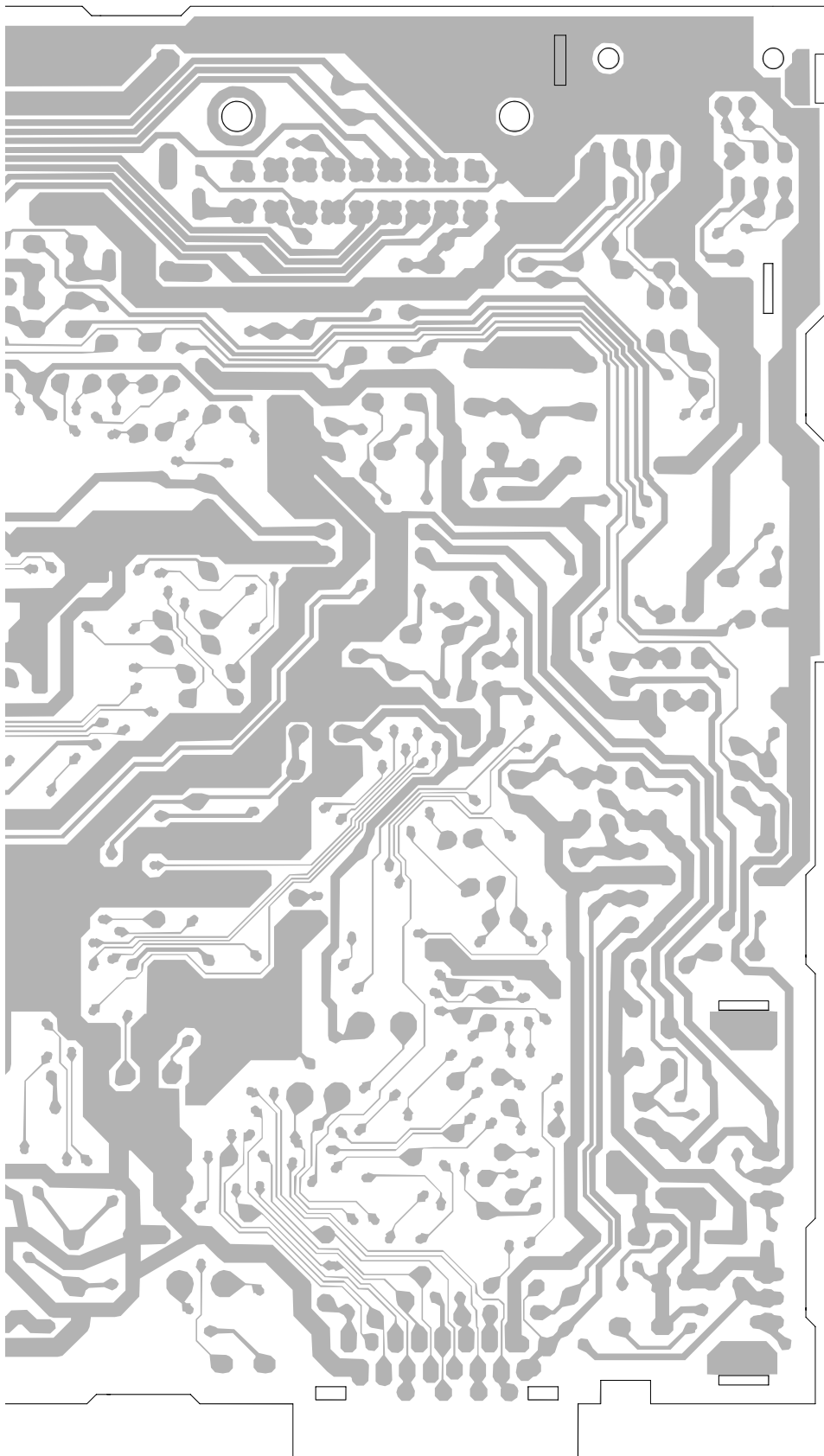
D



FRONT

A TUNER AMP UNIT





SIDE B

A

B

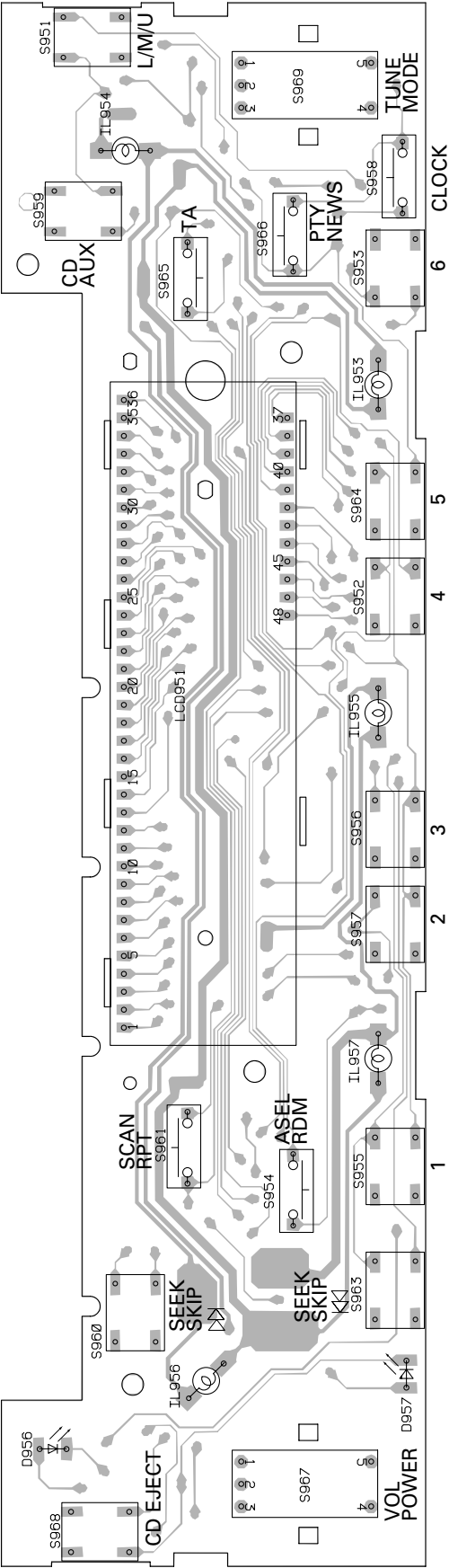
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D

4.2 KEYBOARD UNIT

B KEYBOARD UNIT

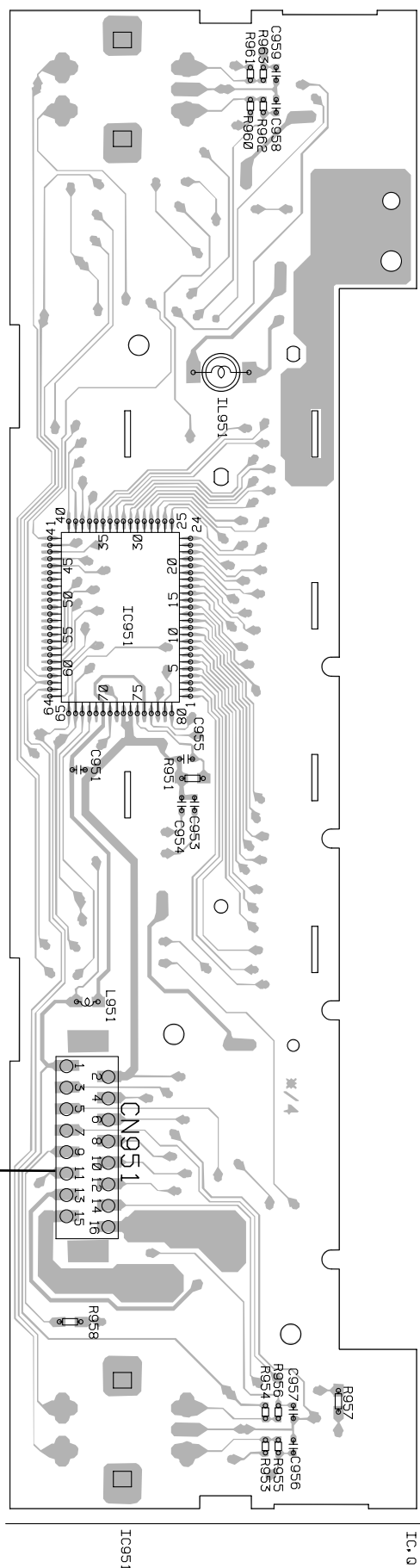
SIDE A



B KEYBOARD UNIT

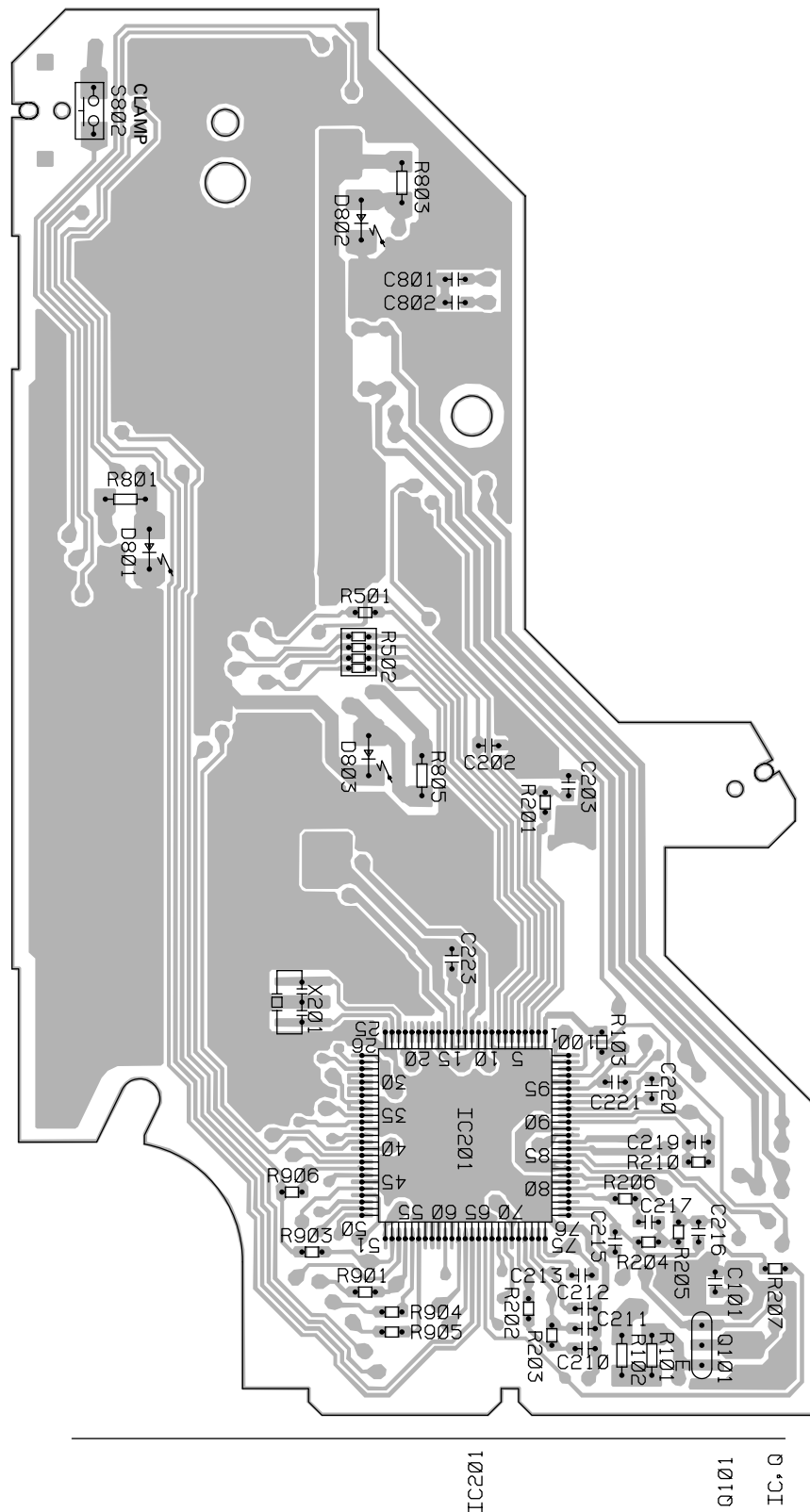
SIDE B

A CN602




C CONTROL UNIT

SIDE B



====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 204	RS1/16S221J	R 509	RS1/16S681J
R 205	RS1/16S392J	R 510	RS1/16S224J
R 206	RS1/16S392J	R 511	RS1/16S162J
R 207	RS1/16S154J	R 512	RS1/16S162J
R 208	RS1/16S154J	R 513	RS1/16S332J
R 209	RS1/16S101J	R 514	RS1/16S332J
R 210	RS1/16S101J	R 515	RS1/16S104J
R 211	RS1/16S101J	R 516	RS1/16S104J
R 212	RS1/16S101J	R 517	RS1/16S222J
R 213	RS1/16S472J	R 518	RS1/16S222J
R 214	RS1/16S472J	R 519	RS1/16S223J
R 215	RS1/16S472J	R 520	RS1/16S223J
R 216	RS1/16S472J	R 521	RS1/16S224J
R 217	RS1/16S562J	R 522	RS1/16S224J
R 218	RS1/16S562J	R 523	RS1/16S472J
R 219	RS1/16S562J	R 524	RS1/16S473J
R 220	RS1/16S562J	R 525	RS1/16S102J
R 301	RS1/16S123J	R 526	RS1/16S473J
R 302	RS1/16S123J	R 527	RS1/16S681J
R 303	RS1/16S123J	R 528	RS1/16S103J
R 304	RS1/16S123J	R 529	RS1/16S393J
R 305	RS1/16S472J	R 530	RS1/16S681J
R 306	RS1/16S472J	R 531	RS1/16S472J
R 307	RS1/16S472J	R 532	RS1/16S681J
R 308	RS1/16S472J	R 533	RS1/16S473J
R 309	RS1/16S332J	R 534	RS1/16S681J
R 310	RS1/16S332J	R 535	RS1/16S473J
R 313	RS1/16S683J	R 536	RS1/16S681J
R 314	RS1/16S683J	R 537	RS1/16S681J
R 317	RS1/16S821J	R 538	RS1/16S473J
R 318	RS1/16S821J	R 539	RS1/16S222J
R 321	RS1/16S182J	R 540	RS1/16S222J
R 322	RS1/16S182J	R 542	RD1/4PU151J
R 325	RS1/16S332J	R 601	RAB4C222J
R 326	RS1/16S332J	R 605	RS1/16S102J
R 329	RS1/16S683J	R 607	RS1/16S102J
R 330	RS1/16S683J	R 608	RS1/16S102J
R 333	RS1/16S122J	R 609	RS1/16S102J
R 334	RS1/16S122J	R 610	RS1/16S223J
R 337	RS1/16S122J	R 611	RS1/16S472J
R 338	RS1/16S122J	R 613	RS1/16S0R0J
R 341	RS1/16S332J	R 615	RS1/16S102J
R 342	RS1/16S332J	R 622	RS1/16S473J
R 345	RS1/16S683J	R 628	RA3C102J
R 346	RS1/16S683J	R 637	RS1/16S102J
R 349	RS1/16S122J	R 638	RA3C473J
R 350	RS1/16S122J	R 641	RS1/16S303J
R 357	RS1/16S392J	R 642	RS1/16S102J
R 358	RS1/16S392J	R 643	RS1/16S822J
R 361	RS1/16S472J	R 644	RS1/16S473J
R 362	RS1/16S472J	R 645	RS1/16S104J
R 363	RS1/16S472J	R 646	RS1/16S473J
R 364	RS1/16S472J	R 647	RS1/16S473J
R 365	RD1/4PU222J	R 648	RS1/16S473J
R 366	RS1/16S512J	R 649	RS1/16S473J
R 367	RS1/16S274J	R 650	RS1/16S392J
R 368	RS1/16S274J	R 651	RD1/4PU101J
R 369	RS1/16S102J	R 652	RD1/4PU680J
R 401	RA3C102J	R 653	RD1/4PU101J
R 404	RS1/16S681J	R 654	RS1/16S102J
R 406	RS1/16S102J	R 655	RS1/16S102J
R 409	RS1/16S225J	R 656	RS1/10S471J
R 501	RS1/16S473J	R 657	RS1/16S473J
R 502	RS1/16S681J	R 658	RS1/16S472J
R 503	RS1/16S473J	R 659	RS1/16S473J
R 504	RS1/16S681J	R 660	RS1/16S122J
R 505	RS1/16S473J	R 662	RS1/16S103J
R 506	RS1/16S681J	R 663	RS1/16S103J
R 507	RS1/16S153J	R 665	RS1/16S103J
R 508	RS1/16S474J	R 666	RS1/16S103J

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
R 667	RS1/16S472J	C 216	CEAL1R5M50
R 668	RS1/16S103J	C 217	CKSRYB332K50
R 669	RS1/16S103J	C 218	CKSRYB332K50
R 671	RS1/16S102J	C 219	CEALNP4R7M16
R 672	RS1/16S102J	C 220	CEALNP4R7M16
R 674	RS1/16S473J	C 221	CKSRYB153K25
R 676	RS1/16S473J	C 222	CKSRYB153K25
R 801	RS1/16S101J	C 223	CKSRYB104K16
R 802	RS1/10S681J	C 224	CKSRYB104K16
R 803	RD1/4PU472J	C 225	CKSRYB224K10
R 804	RD1/4PU331J	C 226	CKSRYB224K10
R 805	RS1/16S272J	C 227	CEALNP4R7M16
R 806	RS1/16S103J	C 228	CEALNP4R7M16
R 807	RS1/16S203J	C 229	CEAL4R7M35
R 808	RS1/16S222J	C 230	CEAL2R2M50
R 809	RS1/16S221J	C 233	CEALNP4R7M16
R 810	RD1/4PU221J	C 234	CEALNP4R7M16
R 811	RS1/16S472J	C 235	CCSRCH221J50
R 812	RS1/16S272J	C 236	CCSRCH221J50
R 813	RS1/16S103J	C 237	CCSRCH221J50
R 814	RS1/16S103J	C 238	CCSRCH221J50
R 815	RS1/16S472J	C 239	CKSRYB472K50
R 816	RS1/16S222J	C 243	CKSRYB154K10
R 817	RD1/4PU331J	C 244	CKSRYB154K10
R 818	RD1/4PU101J	C 301	CKSRYB334K10
R 853	RD1/4PU102J	C 302	CKSRYB334K10
R 854	RS1/16S472J	C 305	CKSRYB154K10
R 855	RS1/16S472J	C 306	CKSRYB154K10
R 856	RS1/16S103J	C 309	CKSRYB682K25
R 857	RS1/16S103J	C 310	CKSRYB682K25
R 870	RD1/4PU472J	C 313	CKSRYB333K25
R 871	RD1/4PU331J	C 314	CKSRYB333K25
R 872	RD1/4PU331J	C 317	CKSRYB223K25
R 873	RD1/4PU472J	C 318	CKSRYB223K25
R 874	RS1/16S103J	C 321	CKSRYB333K25
R 901	RS1/16S103J	C 322	CKSRYB333K25
R 902	RS1/10S221J	C 325	CCSRCH101J50
R 903	RS1/10S222J	C 326	CCSRCH101J50
R 904	RS1/16S153J	C 327	CCSRCH101J50
R 905	RS1/16S472J	C 328	CCSRCH101J50
R 906	RS1/16S102J	C 329	CEAL101M6R3
R 907	RS1/16S472J	C 330	CKSRYB104K16
R 908	RS1/16S103J	C 401	CEAL220M6R3
R 909	RS1/8S121J	C 402	CKSRYB473K16
R 910	RD1/2PM681J	C 403	CCSRCH270J50
R 911	RS1/8S223J	C 404	CCSRCH270J50
R 914	RD1/4PU102J	C 405	CKSRYB104K16
R 918	RS1/16S102J	C 406	CKSRYB471K50
R 919	RS1/16S473J	C 407	CKSRYB471K50
R 920	RS1/16S222J	C 408	CEAL4R7M35
CAPACITORS		C 409	CKSRYB473K16
C 101	CKSRYB473K16	C 501	CKSRYB182K50
C 201	CEAL470M10	C 502	CKSRYB472K50
C 202	CKSRYB473K16	C 503	CKSRYB183K25
C 203	CEAL1R0M50	C 504	CKSRYB183K25
C 205	CKSRYB103K50	C 505	CEAL1R0M50
C 206	CKSRYB103K50	C 506	CEAL1R0M50
C 207	CEAL1R0M50	C 507	CKSRYB223K25
C 208	CEAL1R0M50	C 508	CKSRYB473K16
C 209	CEAL1R0M50	C 509	CKSRYB224K10
C 210	CEAL1R0M50	C 510	CKSRYB224K10
C 211	CEAL1R0M50	C 511	CEAL101M6R3
C 212	CEAL1R0M50	C 512	CKSRYB102K50
C 213	CEALNP4R7M16	C 513	CEJA101M16
C 214	CEALNP4R7M16	C 516	CKSRYB102K50
C 215	CEAL1R5M50		

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
C 517	CEAL220M10	 Unit Number : CWX2411	
C 519	CKSRYB103K50	Unit Name : Control Unit	
C 521	CKSRYB223K25		
C 522	CKSRYB103K50		
C 523	CEAL470M16	MISCELLANEOUS	
C 525	CEJA101M16	IC 201 IC	UPD63711GC
C 526	CKSRYB102K50	IC 301 IC	BA5985FM
C 601	CCSRCH8R0D50	IC 701 IC	BA05SFP
C 602	CCSRCH330J50	Q 101 Transistor	2SB1132
C 606	CEAL4R7M35	D 801 Chip LED	CL203IRXTU
C 607	CKSRYB103K50	D 802 Chip LED	CL203IRXTU
C 609	CKSRYB102K50	X 201 Ceramic Resonator 16.934MHz	CSS1456
C 610	CEAL2R2M50	S 801 Spring Switch(HOME)	CSN1051
C 611	CKSRYB102K50	S 802 Spring Switch(CLAMP)	CSN1052
C 612	CKSRYB102K50		
C 613	CKSRYB102K50	RESISTORS	
C 614	CKSRYB103K50	R 101	RS1/8S120J
C 615	CKSRYB102K50	R 102	RS1/8S100J
C 616	CEAL2R2M50	R 103	RS1/16S222J
C 801	CKSRYB473K16	R 201	RS1/16S104J
C 802	CEAL220M10	R 202	RS1/16S103J
C 803	CEAL101M10	R 203	RS1/16S393J
C 804	CKSRYB103K50	R 204	RS1/16S103J
C 805	CEAL220M10	R 205	RS1/16S103J
C 806	CEAL220M10	R 206	RS1/16S182J
C 807	CKSRYB103K50	R 207	RS1/16S123J
C 808	CCH1331	R 302	RS1/16S153J
C 809	CEAL101M10	R 303	RS1/16S103J
C 810	CKSRYB102K50	R 501	RS1/16S102J
C 811	CKSRYB473K16	R 502	RA4C681J
C 812	CCH1331	R 601	RS1/16S102J
C 851	CEAL220M10	R 602	RS1/16S102J
C 852	CKSRYB104K16	R 605	RS1/16S0R0J
C 857	CKSRYB102K50	R 606	RS1/16S0R0J
C 858	CEAL4R7M35	R 801	RS1/8S751J
C 859	CKSRYB104K16	R 803	RS1/8S751J
C 860	CEAL2R2M50	R 902	RS1/16S0R0J
C 901	CKSRYB474K10	R 906	RS1/16S0R0J
C 902	CKSRYB474K10		
C 903	CKSRYB474K10	CAPACITORS	
C 904	CKSRYB474K10	C 101	CKSRYB102K50
C 905	CKSRYB102K50	C 102	CKSRYB104K16
C 906	CKSRYB102K50	C 103	CEV101M6R3
C 907	CKSRYB102K50	C 104	CEV470M6R3
C 908	CKSRYB102K50	C 105	CKSQYB334K16
C 909	CKSRYB102K50	C 106	CKSQYB334K16
C 910	CKSRYB102K50	C 107	CKSQYB334K16
C 911	CKSRYB102K50	C 201	CKSRYB104K16
C 912	CKSRYB102K50	C 202	CKSRYB471K50
C 913	CKSQYB104K50	C 203	CKSRYB104K16
C 914	CEAL100M16	C 205	CEV101M6R3
C 915	CKSQYB225K10	C 206	CKSRYB104K16
C 916	CEAL1R0M50	C 207	CKSRYB104K16
C 917	CEAL100M16	C 208	CKSRYB104K16
C 918	CKSRYB102K50	C 209	CKSRYB104K16
C 919	CKSRYB102K50	C 210	CKSRYB332K50
C 920	CCH1368	C 211	CKSRYB104K16
C 921	CKSRYB102K50	C 212	CKSRYB104K16
C 922	CKSQYB104K50	C 213	CKSRYB392K50
C 923	CKSQYB473K50	C 214	CKSRYB104K16
C 924	CKSQYB225K10	C 215	CKSRYB104K16
C 925	CKSRYB474K10	C 216	CCSRCJ3R0C50
C 926	CKSRYB474K10	C 217	CCSRCH270J50
C 927	CKSRYB474K10	C 218	CKSRYB104K16
C 928	CKSRYB474K10	C 219	CCSRCH181J50
C 929	CEAL4R7M35		

====Circuit Symbol and No.===Part Name	Part No.
C 220	CCSRCH510J50
C 221	CKSRYB682K25
C 222	CEV220M6R3
C 223	CKSRYB103K25
C 224	CKSRYB224K10
C 301	CEV101M10
C 603	CCSQSL152J50
C 604	CCSQSL152J50
C 702 10μF/10V	CCH1349
C 703	CKSQYB334K16

B Unit Number : CWM8000
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 951	IC	LC75883EHS
D 956	LED	CL200FGCTU
D 957	Chip LED	CL200HRCTU
L 951	Inductor	LCTB4R7K2125
S 951	Switch	CSG1049
S 952	Switch	CSG1049
S 953	Switch	CSG1049
S 954	Switch	CSG1043
S 955	Switch	CSG1049
S 956	Switch	CSG1049
S 957	Switch	CSG1049
S 958	Switch	CSG1043
S 959	Switch	CSG1049
S 960	Switch	CSG1049
S 961	Switch	CSG1043
S 963	Switch	CSG1049
S 964	Switch	CSG1049
S 965	Switch	CSG1043
S 966	Switch	CSG1043
S 967	Encoder	CSD1054
S 968	Switch	CSG1049
S 969	Encoder	CSD1054
IL 951	Lamp 8V 60mA	CEL1704
IL 953	Lamp 14V 40mA	CEL1692
IL 954	Lamp 14V 40mA	CEL1692
IL 955	Lamp 14V 40mA	CEL1692
IL 956	Lamp 14V 40mA	CEL1692
IL 957	Lamp 14V 40mA	CEL1692
LCD 951	LCD	CAW1708

RESISTORS

R 951	RS1/10S683J
R 953	RS1/16S103J
R 954	RS1/16S103J
R 955	RS1/16S103J
R 956	RS1/16S103J
R 957	RS1/10S221J
R 958	RS1/10S561J
R 960	RS1/16S103J
R 961	RS1/16S103J
R 962	RS1/16S103J
R 963	RS1/16S103J

CAPACITORS

C 951	CKSRYB473K16
C 953	CKSRYB473K16
C 954	CKSRYB473K16
C 955	CCSRCH821J50
C 956	CKSRYB103K50
C 957	CKSRYB103K50
C 958	CKSRYB103K50
C 959	CKSRYB103K50

====Circuit Symbol and No.===Part Name	Part No.
--	----------

D Unit Number :
Unit Name : Photo Unit(S8)

Q 1	Photo-transistor	CPT230SX-TU
Q 2	Photo-transistor	CPT230SX-TU

Miscellaneous Parts List

M 1	PU Unit(Service)(P8)	CXX1285
M 1	Motor Unit(CARRIAGE)	CXB2190
M 2	Motor Unit(LOADING)	CXB2195
M 3	Motor Unit(SPINDLE)	CXB2562

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.

If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
 - *During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
 - *The unit will not load a disc.

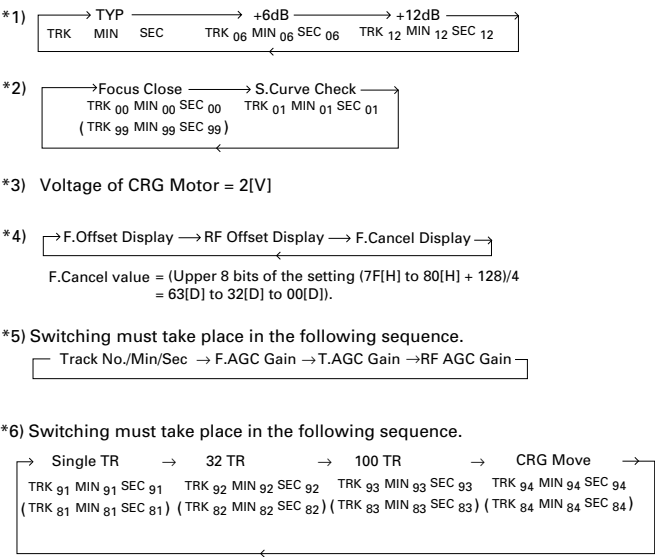
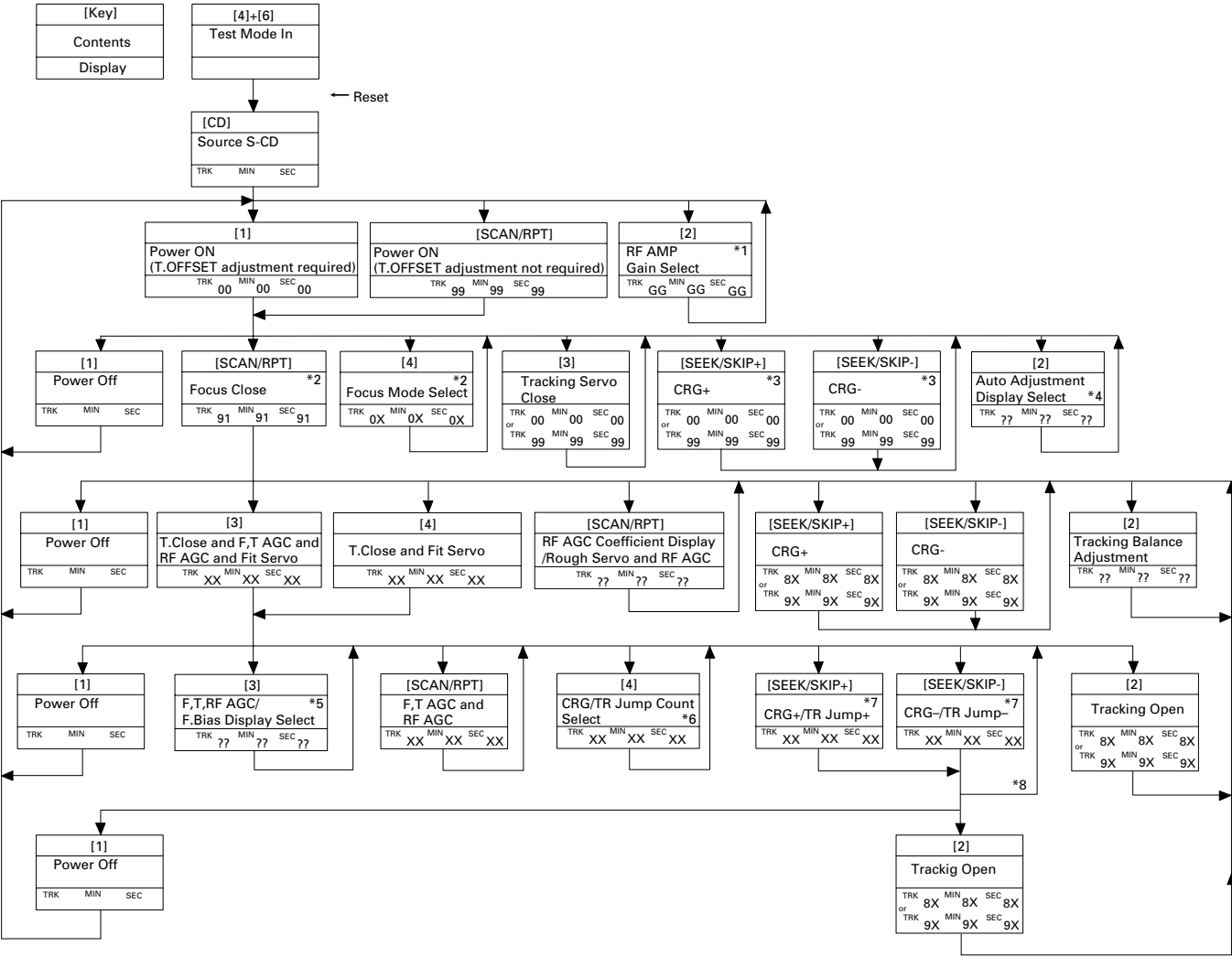
When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
Reset while pressing the **4** and **6** keys together.
- Test mode cancellation
Switch ACC, back-up OFF.
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.
- If the SEEK/SKIP+ or SEEK/SKIP- key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).
- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the "Tracking close" status when the key is released.

● Flow Chart



[Key]	Test Mode
[1]	Power ON/OFF
[SEEK/SKIP+]	CRG+ / TR Jump+ (Toward outer perimeter)
[SEEK/SKIP-]	CRG- / TR Jump- (Toward inner perimeter)
[3]	Tracking Close and AGC and Fit Servo / AGC, AGC display select
[2]	RF Gain switching / Off set adjustment display / Tracking Balance adjustment / Tracking Open
[SCAN/RPT]	Focus Close, S.Curve / Rough Servo and RF AGC / F,T,RF AGC
—	Focus open
—	Jump off
[4]	Focus Mode select / Tracking Close / CRG, TR Jump switching

*7) Single TR / 32TR / 100TR

*8) CRG Move, 100TR Jump Only.

Powering Off/On resets the jump mode to Single TR , the RF AMP gain setting to TYP, and the automatic adjustment value to the initial value.

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

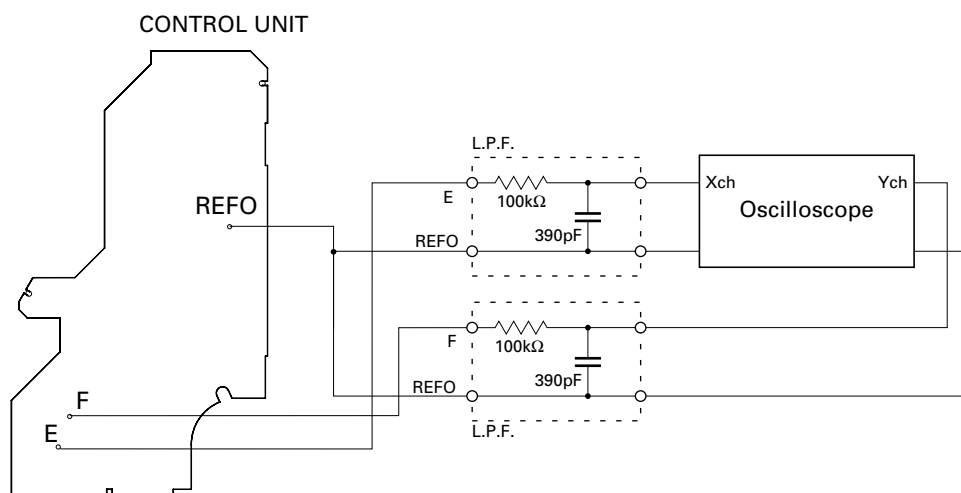
To check that the grating is within an acceptable range when the PU unit is changed.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, REFOUT |
| • Disc | • ABEX TCD-784 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the **SEEK/SKIP+** and **SEEK/SKIP-** buttons, move the PU unit to the innermost track.
3. Press key **SCAN/RPT** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **SCAN/RPT** 2 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75°. Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

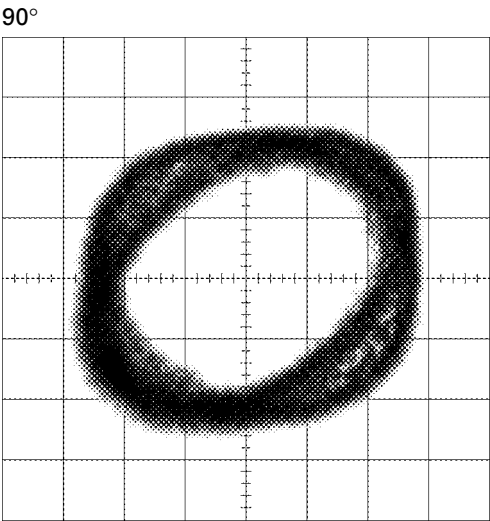
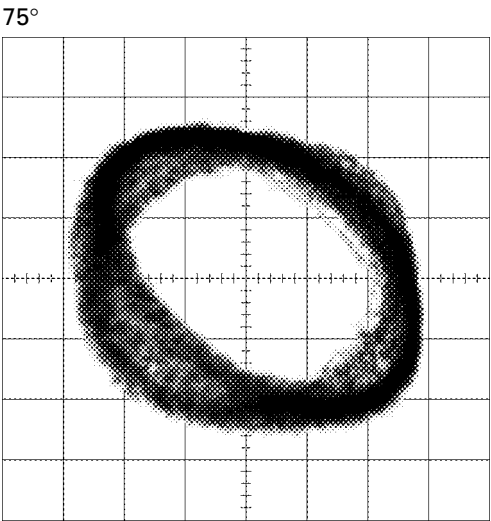
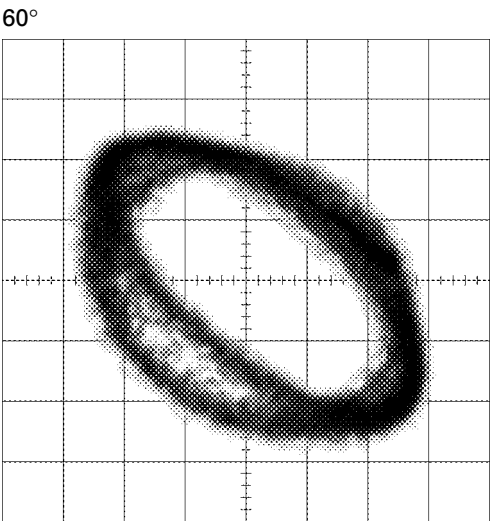
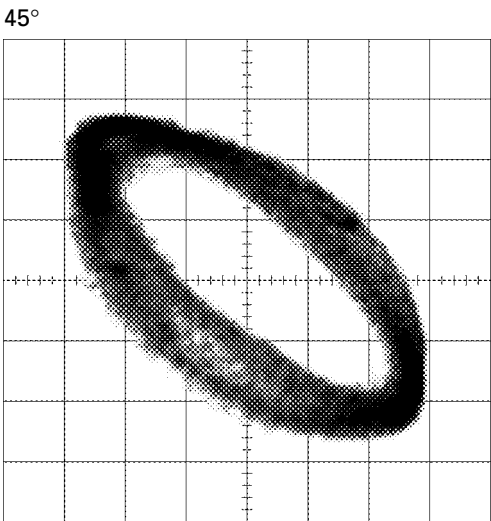
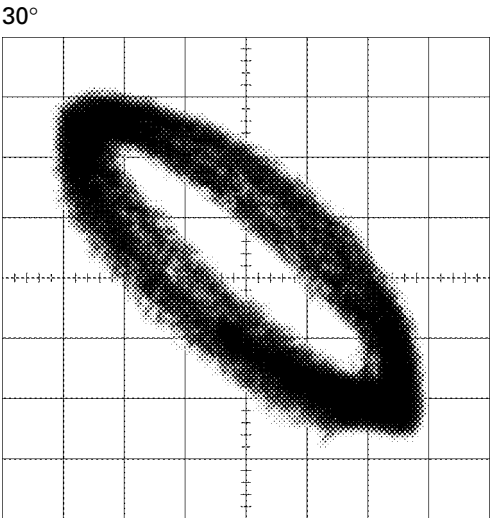
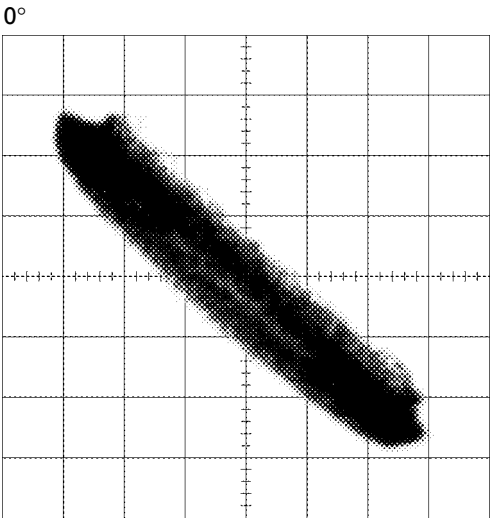
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

Reloading the disc changes the clamp position and may decrease the "wobble".

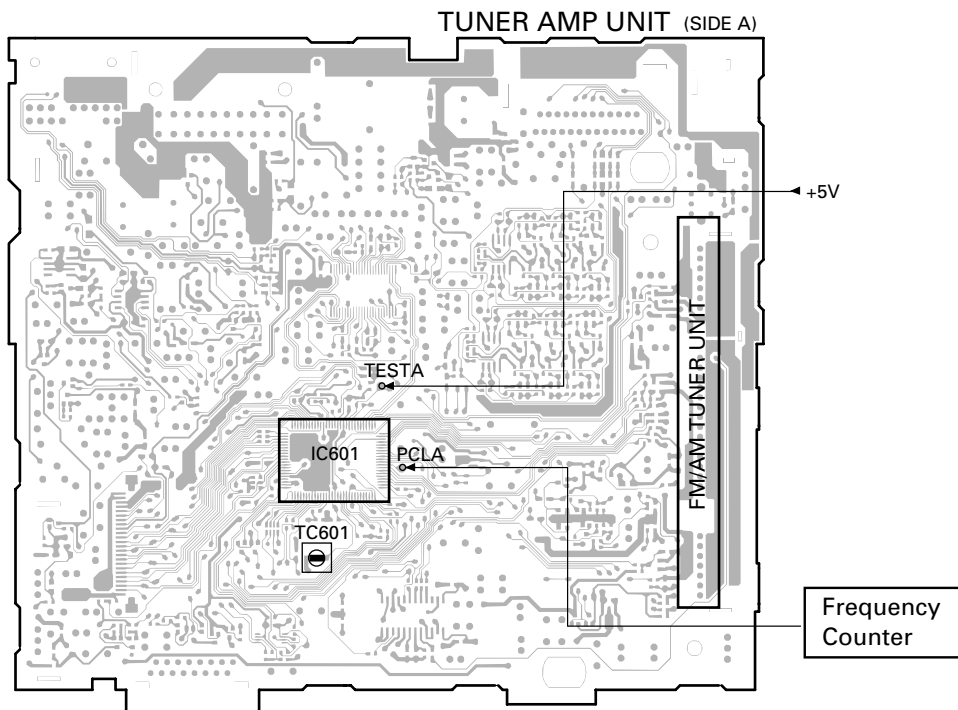
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC



6.3 CLOCK ADJUSTMENT

● Connection Diagram



CLOCK ADJUSTMENT

No.		Adjustment Point	Adjustment Method (Switch Position)
1	Switch ACC, back-up On.		
2	Apply +5V to the test point TESTA.	TC601	Frequency Counter : $312.5\text{kHz} \pm 0.001\text{kHz}$

Remarks: The adjustment should be made when the ambient temperature is between 10 degrees C and 30 degrees C.

6.4 ERROR MESSAGES

● Error message table

Error				Presumable causes (For the slave, general conditions)
Source	Display	Error name	BUS data	
Internal CD	ERROR	Mech. error	F0	Mechanical error CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication failure between the microcomputer and the LSI Target address can't be reached → Failure on the carriage/tracking or scratches on the disc. Ground fault of power supply (VD) → Failure on switching transistor or failure of power supply.
	HEAT	High temperature error	F1	High temperature sense
	DISC	Focus error	F2	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE. Spindle not locked. Sub-code is strange (not readable). An appropriate RF AMP gain can't be determined. → Failure on spindle, stains or damages on disc, or excessive vibrations. → CD signal error. → A disc not containing CD-R data is found. Turned over disc are found, though rarely. AGC protection cannot be turned on in time or focus can be easily lost → Scratches or stains on the disc or strong vibrations.
External DISC	ERROR	Mech. error	F0	Mechanical error
	HEAT	High temperature error	F1	High temperature sense
	DISC	Focus error	F2	Focusing not available.
External DISC (CHG only)	DISC	Magazine error	F3	An error with an empty magazine inserted. No magazine is available.
External TAPE	TP-ER	error	F0	The BUS status is F0 (ERROR).

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case (not shown)

1. Remove the Case.

● Removing the CD Mechanism Module (Fig.1)

- 1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

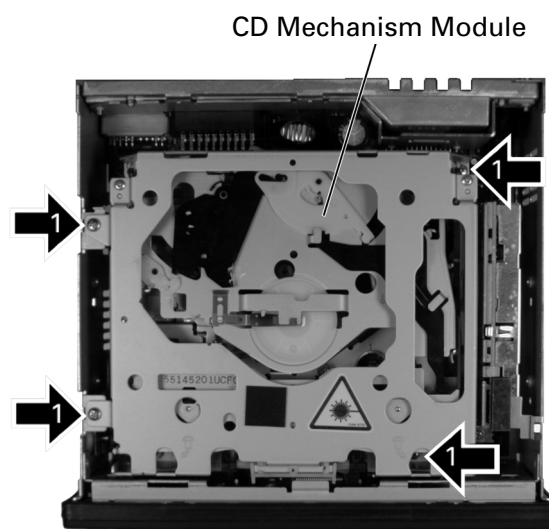


Fig.1

● Removing the Grille Assy (Fig.2)

The Cushion has been stuck onto the frame of the Grille Assy with double-faced adhesive tape. Remove the Cushion from the frame.

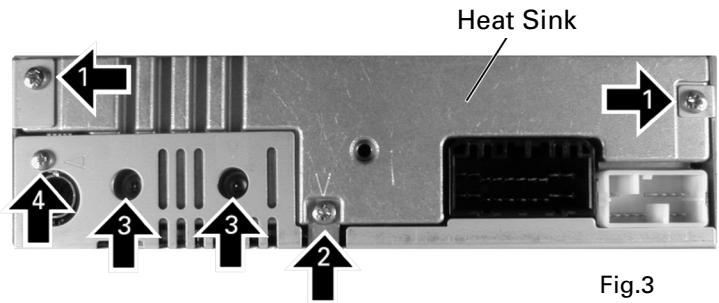
- 1 Remove the two screws.
- 2 Disconnect the six claws and then remove the Grille Assy.



Fig.2

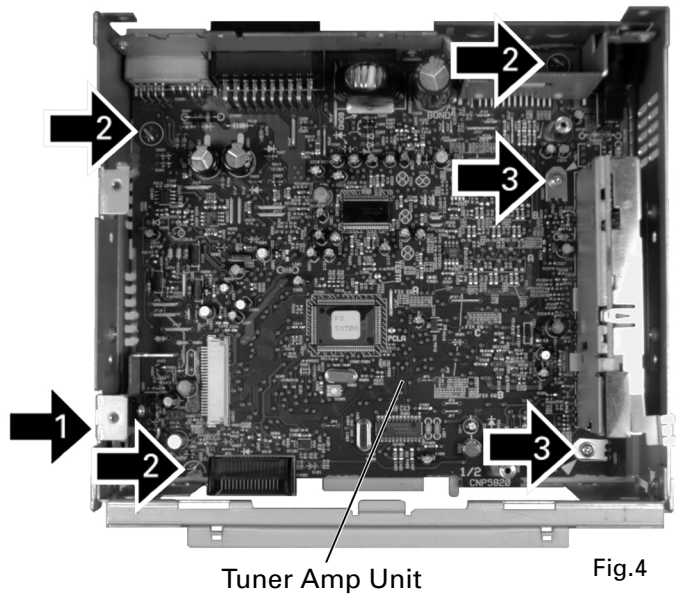
● Removing the Heat Sink (Fig.3)

- ➡ 1 Remove the two screws(M3 x 12).
- ➡ 2 Remove the screw(M3 x 6).
- ➡ 3 Remove the two screws.
- ➡ 4 Remove the screw and then remove the Heat Sink.



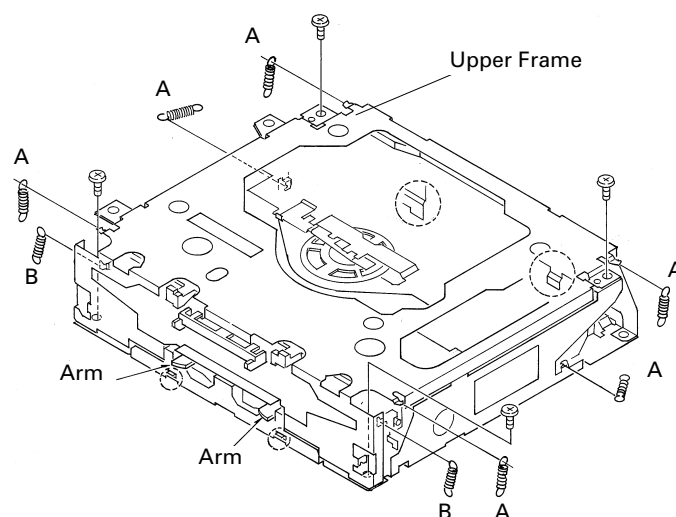
● Removing the Tuner Amp Unit (Fig.4)

- ➡ 1 Remove the screw.
- ➡ 2 Straight the tabs at three locations indicated.
- ➡ 3 Remove the two screws and then remove the Tuner Amp Unit.



● Removing the Upper Frame

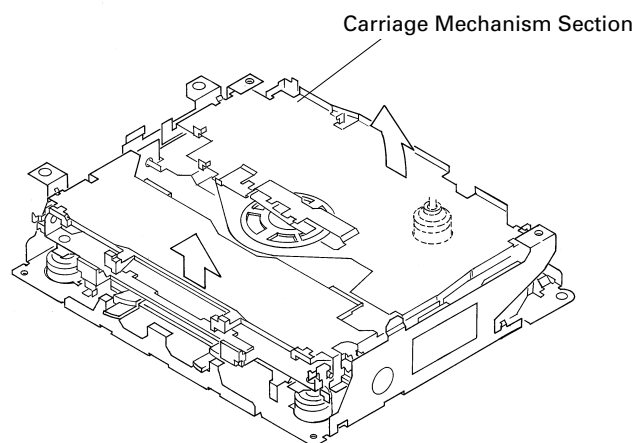
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

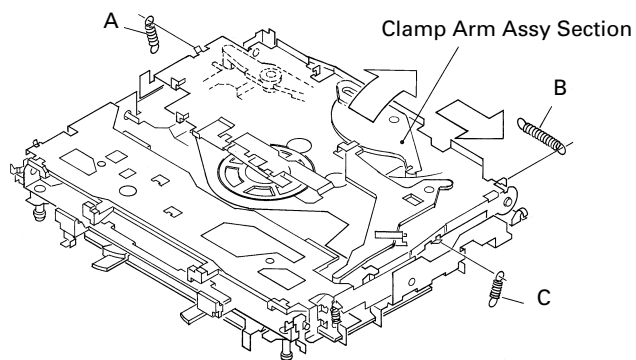
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the one damper by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

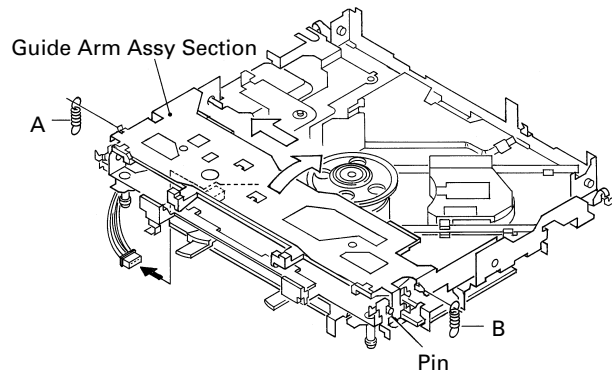
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

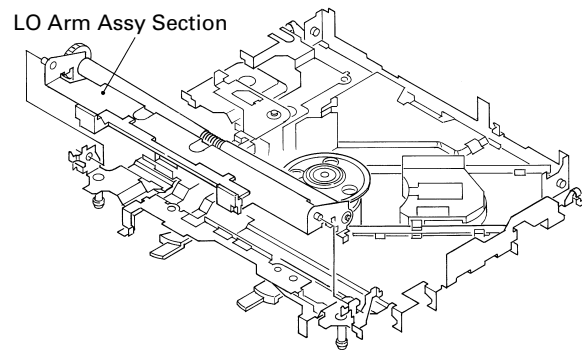
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



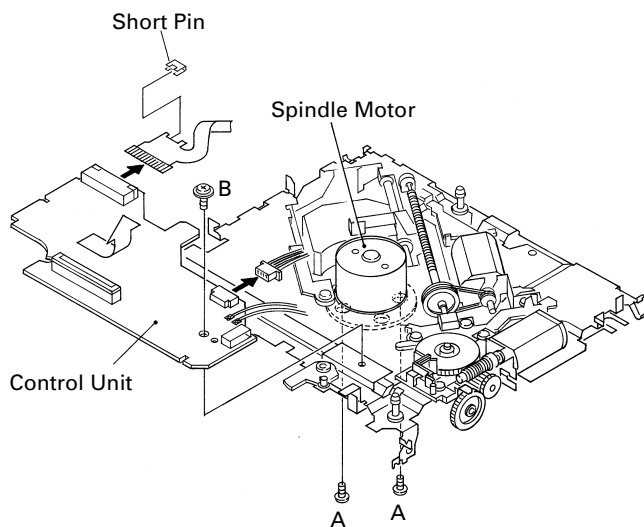
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

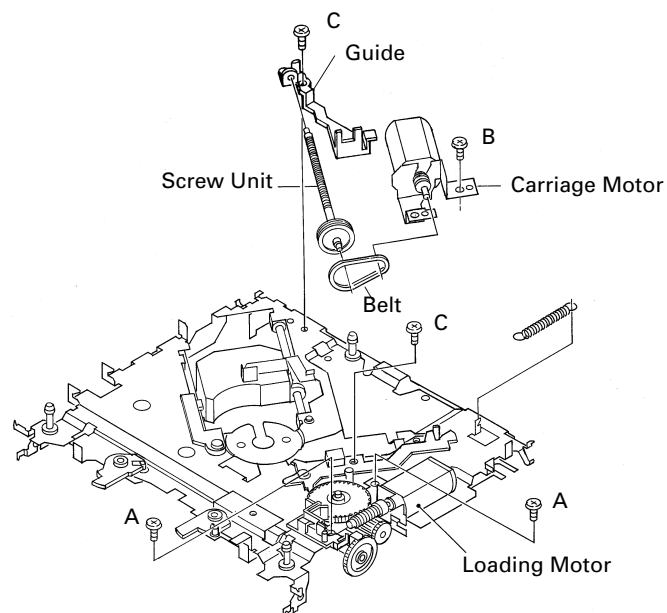
1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.



● Removing the Loading Motor and Carriage Motor

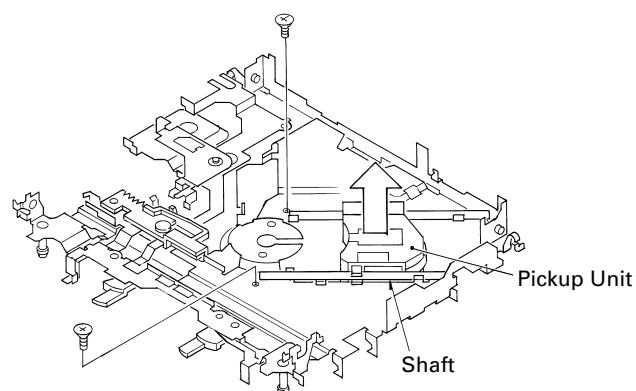
1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.

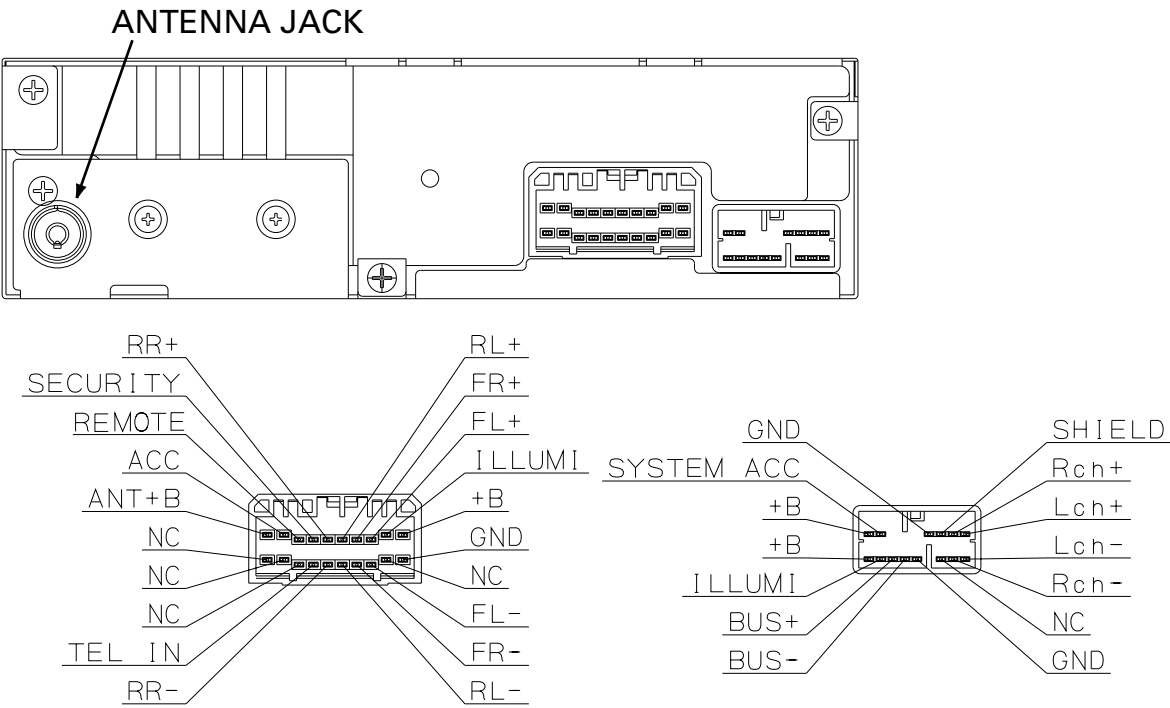


● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



7.2 PARTS

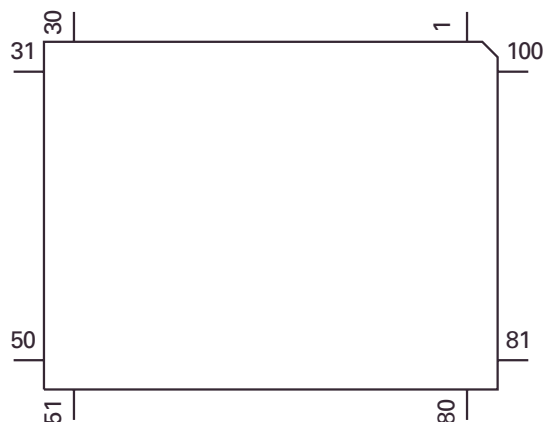
7.2.1 IC

● Pin Functions (PD5739A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	ATDO	O	C	Anti-theft communication data output
2	ATCK	O	C	Anti-theft communication clock output
3	ATCE	O	C	Anti-theft communication chip enable
4	LCE	O	C	Chip enable output pin for LCD driver
5	LDO	O	C	LCD driver data output
6	LDI	I		LCD driver data input
7	$\overline{\text{LCK}}$	O	C	Clock output for LCD driver
8	BYTE	I		Connect to GND
9	CNVSS	I		Connect to GND
10	TUNE UP	I		Encoder 2 input
11	TUNE DOWN	I		Encoder 2 input
12	$\overline{\text{RESET}}$	I		Reset input
13	XOUT	O		Crystal oscillating element connection pin
14	VSS			GND
15	XIN	I		Crystal oscillating element connection pin
16	VDD			5V
17	NC			Not used
18	$\overline{\text{RCK}}$	I		RDS clock input
19	$\overline{\text{LDET}}$	I		PLL lock sense input
20	$\overline{\text{CDEJ}}$	I		CD eject key sense input
21	BUS	I		BUS data input
22	IPPW	O	C	IP-BUS driver power supply output
23	BLPOW	O	C	LCD back light output
24	PEE1	O	C	Beep tone output
25	RDS57K	I		RDS 57kHz pulse count input
26	VOL UP	I		Encoder 1 input
27	VOL DOWN	I		Encoder 1 input
28	PEE2	O	C	Beep tone output
29	DIN	I		BUS data input
30	DOUT	O		BUS data output
31	XDSO	O	C	CDS serial data output
32	XDSI	I		CDS serial data input
33	XDSCCK	O	C	CDS serial clock output
34	$\overline{\text{DISCIND}}$	O	C	DISC detect indicator
35	PDO	O	C	Data output for PLL IC
36	PDI	I		Data input from PLL IC
37	$\overline{\text{PCK}}$	O	C	Serial clock output for PLL IC
38	PLLPCCE	O	C	PLL IC communication chip enable
39	PCL	O	C	Clock adjustment output
40	RDT	I		RDS demodulation data input
41	DRST	O	C	Decoder reset output
42	$\overline{\text{RDSLK}}$	I		RDS signal input
43	$\overline{\text{NL2DT}}$	I		SK signal input
44	SDBW	I		SDBW input
45	$\overline{\text{CURRO}}$	O	C	Current request
46	SD	I		SD input
47	TMUTE	O	C	Tuner mute output
48	RECEIVE	O	C	During RDS data reception output
49	$\overline{\text{ST}}$	I		FM stereo input
50	LOCL	O	C	Local L output
51	LOCH	O	C	Local H output
52	FM/AM	O	C	FM/AM power select output
53	VST	O	C	Strobe pulse output for electronic volume
54	$\overline{\text{VCK}}$	O	C	Clock output for electronic volume
55	VDT	O	C	Data output for electronic volume
56,57	NC			Not used
58	PLLCE2	O	C	EEPROM chip enable

Pin No.	Pin Name	I/O	Format	Function and Operation
59	TELIN	I		TEL mute signal input
60	NC			Not used
61	TESTIN	I		Test program mode input
62	VDD			5V
63	NC			Not used
64	VSS			GND
65	ANTPW	O	C	Antenna power output
66	NC			Not used
67	MODEL	I		Clock function select
68	RH/LH	I		VOL/TUNE select
69	ASENBO	O	C	Slave power supply control output
70	SWVDD	O	C	Grille power supply control output
71	SYSPW	O	C	System power supply control output
72	MUTE	O	C	Mute output
73	NC			Not used
74	BSENS	I		Back up power sense input
75	ASENS	I		ACC power sense input
76	CDEJECT	O	C	CD eject control output
77	CDLOAD	O	C	LOAD motor loading control output
78	CD5VON	O	C	CD +5V power supply control output
79	CONT	O	C	Servo driver power supply control
80	VDCONT	O	C	VD control output
81	LOCK	I		Spindle lock detector input
82	MIRR	I		Mirror detector input
83	FOK	I		FOK signal input
84	XSTB	O	C	Strobe output (CD)
85	XAO	O	C	CD LSI data discernment control signal output
86	XRST	O	C	CD LSI reset output
87	CLAMP	I		Disc clamp sense input
88	ANTLED	O	C	Anti-theft indicator
89	REM	I		Remote control input (Handle)
90	DSCSNS	I		Disc detect
91	EJTSNS	I		Disc EJECT position detect
92	TEMP	I		Temperature detector
93	VDSSENS	I		Over voltage sense input
94	NC			Not used
95	NL1	I		RDS noise level input
96	AVSS	I		A/D GND
97	SL	I		RDS signal level
98	VREF	I		A/D converter reference voltage input
99	AVCC	I		Analog power supply
100	ATDI	I		Anti-theft communication data input

*PD5739A



Format	Meaning
C	C MOS

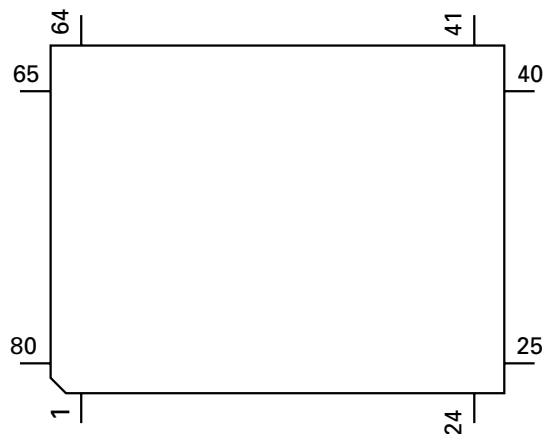
IC's marked by * are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

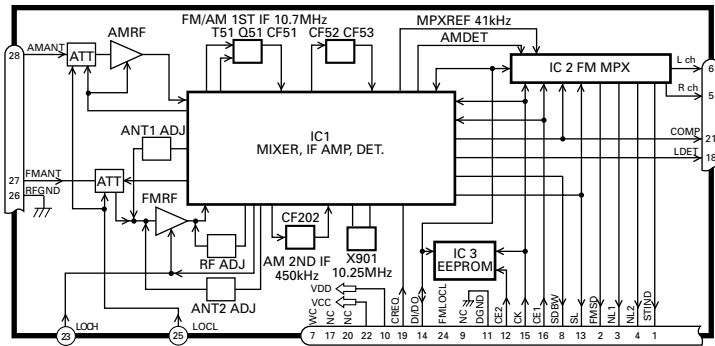
● Pin Functions (LC75883EHS)

Pin No.	Pin Name	I/O	Function and Operation
1-45	S1-45	O	LCD segment output
46-55	S46-55	O	Not used
56-58	COM1-3	O	LCD common output
59-64	KS1-6	O	Key strobe output
65-69	KI1-5	I	Key data input
70	VDD		Power supply terminal
71,72	VDD1,2		LCD bias power supply
73	VSS		GND
74	TEST		Connect to VSS
75	OSC	I/O	Oscillator terminal
76	RES	I	Connect to VDD
77	DO	O	Data output
78	CE	I	Chip enable
79	CL	I	Clock input
80	DI	I	Data input

*LC75883EHS



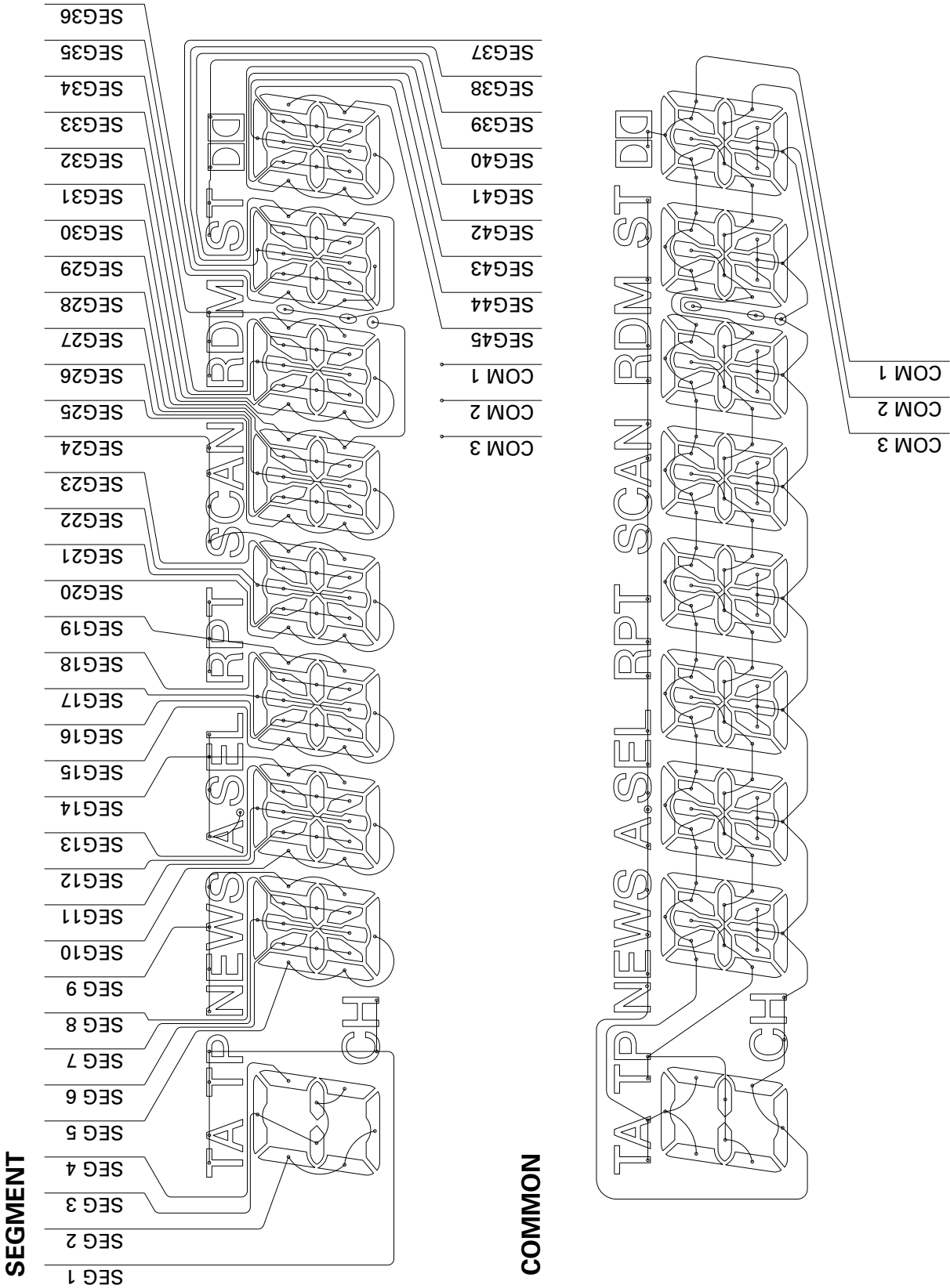
● FM/AM Tuner Unit



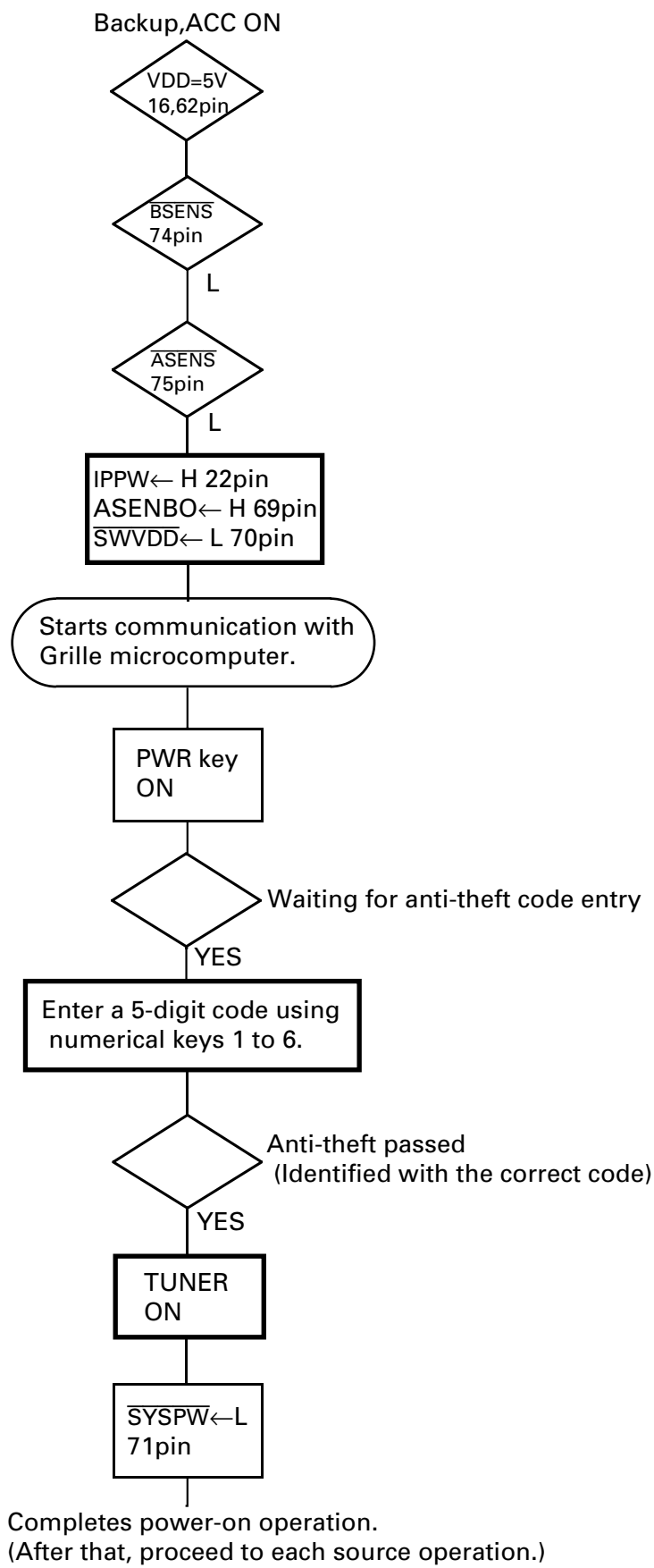
No.	Symbol	I/O	Explain	
1	STIND	O	stereo indicator	"Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector	"High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from here and "High: 0.9VDD or more" and "Low: 250mV or less". (Should satisfy the diver IC specifications)
3	NL1	O	noise level-1	"High" when noise is received. Output for the RDS. GND at 47kΩ //1,800pF.
4	NL2	O	noise level-2	"High" when noise is received. Output for the RDS. GND at 36kΩ //330pF.
5	Rch	O	R channel output	FM stereo "R-ch" signal output or AM audio output. Add the specified de-emphasis constant.
6	Lch	O	L channel output	FM stereo "L-ch" signal output or AM audio output. Add the specified de-emphasis constant.
7	WC		write control	EEPROM write control. Writing permissible at "Low". Normally open.
8	SDBW	O	SD bandwidth	SD bandwidth signal output. For detection of detuning data for the RDS.
9	NC			Not used
10	VDD		power supply	Power supply pin for the digital section. DC 5V +/- 0.25V. Be careful about overlapping noise in the logic section.
11	DGND		digital ground	Grounding for the digital section.
12	CE2	I	chip enable-2	EEPROM chip enable. Active a "Low" To be pulled up to the "VDD" at 47kΩ
13	SL	I/O	signal level	Received FM/AM signal level (strength) output. Connect the specified load resistor and capacitor (10k Ω + 39k Ω //4,700pF)
14	DI/DO	I/O	data input/ data output	Data input/Data output To be pulled up to the "VDD" at 47kΩ
15	CK	I	clock	Clock input To be pulled up to the "VDD" at 47kΩ
16	CE1	I	chip enable-1	AF·RF chip enable. Active at "High" To be grounded at 47kΩ
17	NC			Not used
18	LDET	O	lock detector	Active at "Low". To be pulled up to the "VDD" at 47kΩ
19	CREQ	I	current request	Active at "Low". To be grounded at 47kΩ
20	NC			Not used
21	COMP	O	composite signal	FM composite signal output. r out < 100Ω
22	VCC		power supply	Analog section power supply pin. DC 8.4V +/- 0.3V
23	LOCH	I	local high	FM local high pin. When seeking local high, apply 5V together with "LOCL".
24	FMLOCL	I	FM local low	FM local low pin. When seeking local low, apply 5V to the base of the NPN transistor with which the specified resistor is being connected to the emitter. Keep it open in case of ordinary marketed models.
25	LOCL	I	local low	FM/AM local low pin. When seeking local low, apply 5V to the base of the NPN transistor. Since this pin is exclusive for AM when the FMLOCL is in use, do not drive it under FM.
26	RFGND		RF ground	Grounding for the antenna section.
27	FMANT	I	FM antenna input	FM antenna input. 75Ω. Surge absorber (DSP-201M-S00B) is necessary.
28	AMANT	I	AM antenna input	AM antenna input. High impedance. Connect to the antenna through an L (LAU type) of 4.7μH.To cope with the power transmission line hums, insert a series circuit consisting of an L (a coil of about 100mH) + R (a resistor of 470 Ω to 2.2kΩ) between the GND.

7.2.2 DISPLAY

● CAW1708



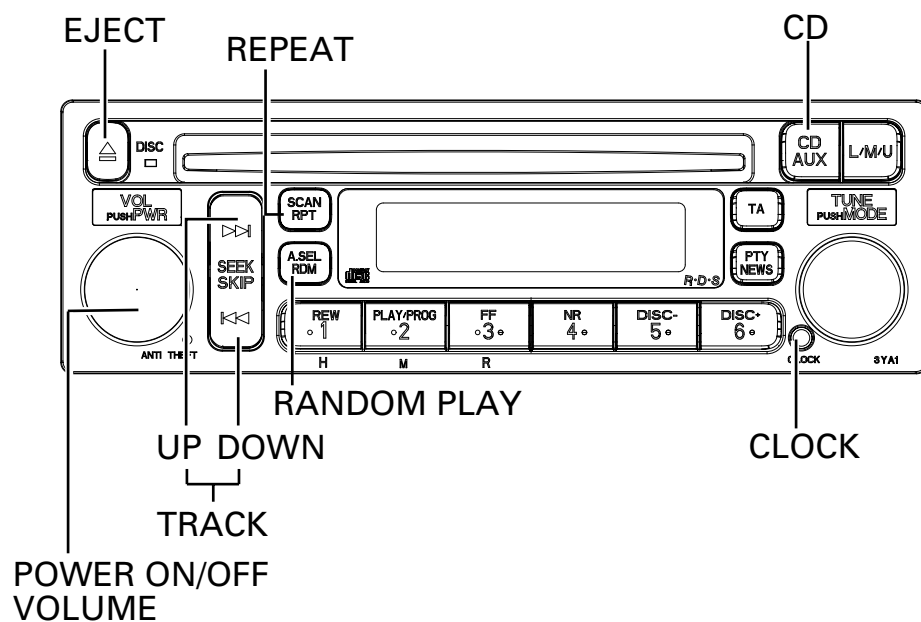
7.3 OPERATIONAL FLOW CHART



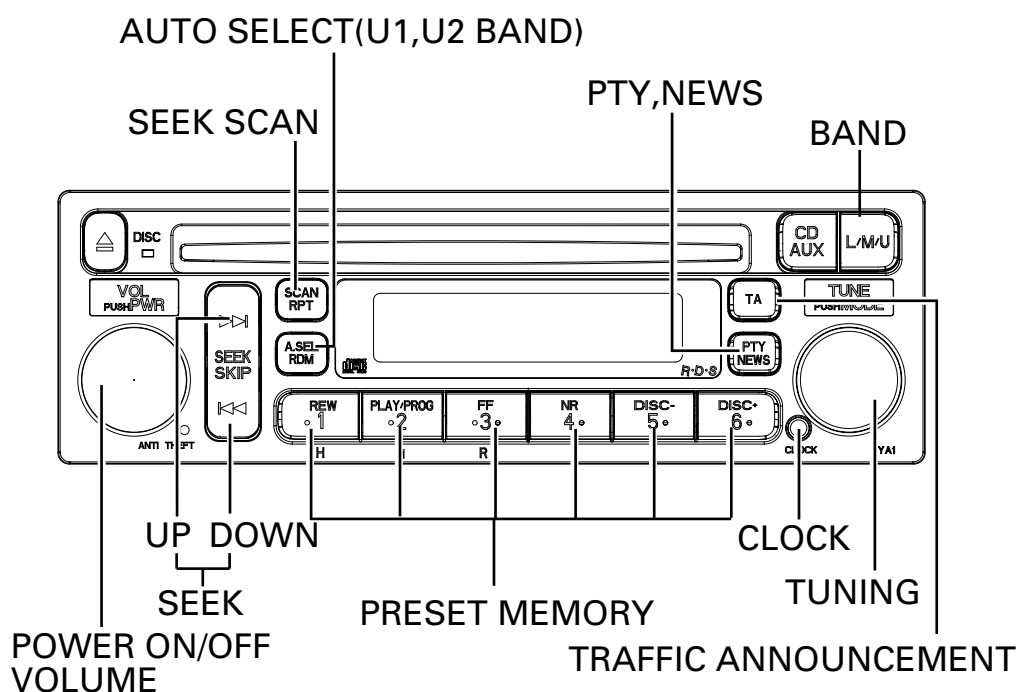
8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

● CD



● RADIO



8.2 SPECIFICATIONS

General

Power source..... 13.2 V(10.8V—16.0V allowable)
Backup current..... 5 mA or less
Grounding system..... Negative type
Weight 1.5 kg

CD player

System.....Compact disc audio system
Usable discs.....Compact disc
Signal format.....Sampling frequency : 44.1 kHz
.....Number of quantization : 16;linear
S/N60 dB or more
Distortion0.2 % or less

FM tuner

Frequency range..... 87.5 — 108.0 MHz
Usable sensitivity 12 dBf ± 6dB (S/N: 30 dB)
Signal-to-noise ratio 45 dB(stereo) or more
Distortion..... 1.3% or less
Stereo separation..... 22 dB or more

MW tuner

Frequency range.....531 - 1,602 kHz(9 kHz)
Usable sensitivity27 dBμ ± 6 dB (S / N : 20 dB)
Selectivity 56 dB or more
Signal-to-noise ratio 40 dB or more
Distortion 0.9% or less

LW tuner

Frequency range.....153 - 281 kHz(9 kHz)
Usable sensitivity30 dBμ ± 6 dB (S / N : 20 dB)
Selectivity 56 dB or more
Signal-to-noise ratio 40 dB or more
Distortion 0.9% or less